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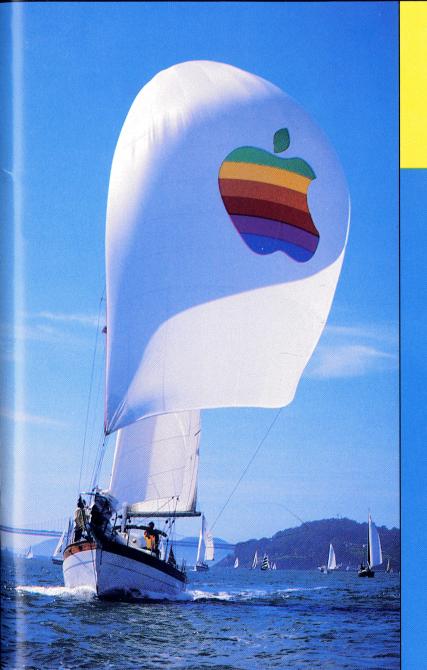
The Premier Magazine for Apple Computer Users

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**VOLUME 3 NUMBER 5** 

**NOVEMBER-DECEMBER 1982** 

\$3.25



# Speeding Up DOS US & the World Shape Editor



**Ubiquitous Logos** 

# THE PROWRITER COMETH

(And It Cometh On Like Gangbusters.)



Evolution.

It's inevitable. An eternal

Just when you think you've got it knocked, and you're resting on your laurels, somebody comes along and makes a dinosaur out of you.

Witness what happened to the Centronics printer when the Epson MX-80 came along

in 1981.

And now, witness what's happening to the MX-80 as the ProWriter cometh to be the foremost printer of the

## **SPEED**

MX-80: 80 cps, for 46 full lines per minute throughput. PROWRITER: 120 cps, for 63 full lines per minute throughput. GRAPHICS

MX-80: Block graphics standard, fine for things like bar graphs.

PROWRITER: High-resolution graphics features, fine for bar graphs, smooth curves, thin lines, intricate details, etc.

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MX-80: Dot matrix business

PROWRITER: Dot matrix correspondence quality, with incremental printing capability standard.

## **FEED**

MX-80: Tractor feed standard; optional friction-feed kit for about \$75 extra.

PROWRITER: Both tractor and friction feed standard.

# **INTERFACE**

MX-80: Parallel interface standard; optional serial interface for about \$75 extra. PROWRITER: Parallel and serial interface standard.

# WARRANTY

MX-80: 90 days, from Epson. PROWRITER: One full year, from Leading Edge.

### **PRICE**

Heh. heh.

Distributed Exclusively by Leading Edge Products, Inc., 225 Turnpike Street, Canton, Massachusetts 02021. Call: toll-free 1-800-343-6833; or in Massachusetts call collect (617) 828-8150. Telex 951-624.

For a free poster of "Ace" (Prowriter's pilot) doing his thing, please write us.

# Vnew for Apple II®

# I. APPLEsurance II...

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- (2) Disk based diagnostic and assurance tests for further and more extensive checks of the basic hardware plus elaborate standard and optional analysis of peripheral cards and sub-systems.

## APPLEsurance II suggested list prices:

Complete System with Disk Controller	Card
and Disk Based Software	\$150.00

Disk Controller Card with Power-Up	
Diagnostics only	\$125.00
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# IV. VERSAcard...

## **FOUR CARDS ON ONE + TWO NEW OPTIONS**

NOW! The four separate card functions — with true simultaneous operation — that made VERSAcard the preferred multifunction card for Apple II — (1) Serial Input/Output Interface (2) Parallel Output Interface, (3) Precision Clock Calendar, and (4) BSR Control — PLUS NEW OPTIONS: Screen Dump Graphics ROM and BSR Time and Event Program.

VERSAcard suggested list price . . . . . \$199:00 Options extra.

# II. GRAPHITTI...

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Firmware 'text' features include: Set Line width via standard ^InN format, Enable or Disable Line Feed after Carriage Return, Set Lines per Page, Set Left Margin, Set or Clear 8th Bit. Print High Resolution Page 1 and/or 2, Double Size, Emphasized Mode, Inverse Mode, Rotate 90 Degrees, Specify Left Margin... and more.

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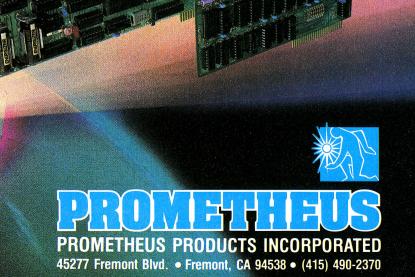
# III. VERSAbox...

# THE ONLY INTELLIGENT SPOOLER/BUFFER WITH AN OPTIONAL REAL TIME CLOCK INTERFACE DISPLAY

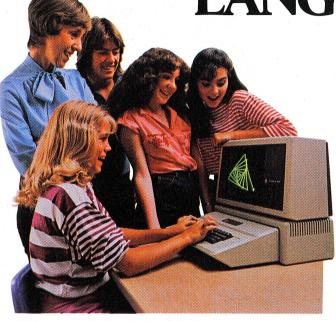
For use with all Centronics parallel and RS-232C INPUT/OUTPUT interfaces. VERSAbox's high-speed input combined with up to 60K buffer (more with character compression) frees up your computer from the slow job of printing. Modems and other compatible devices can also be buffered. Multiple software selectable outputs permit you to choose between two or more VERSAbox outputs or use them simultaneously. You can buffer multiple inputs simultaneously too.

Add the optional REAL TIME CLOCK to VERSAbox and you get a six digit LED numeric time display. Your computer can read the time via the RS-232C port. Another useful option is the SWITCHED 120V SOCKET that can turn external devices on and off by clock control.

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There is no such thing as a mistake with Apple Logo, only logical statements telling you what needs to be done to make the program work. So the student programs the computer. Not the computer the student.

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Apple Logo. It can make getting to know a computer the most positive of learning experiences.

Your kids will swear by it.



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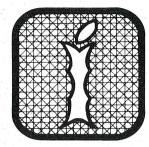




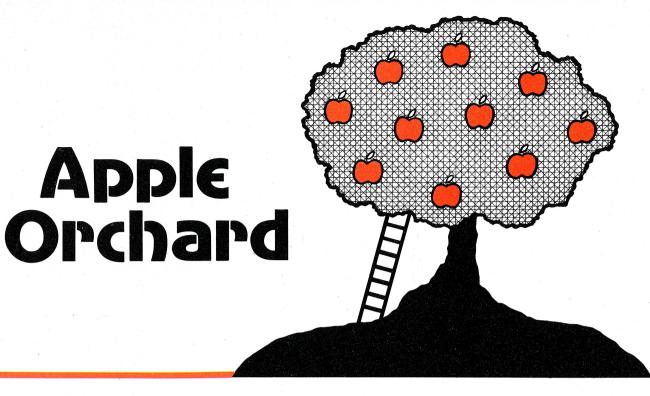


# Take a bite...





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Vol. 3, No. 5 November - December 1982

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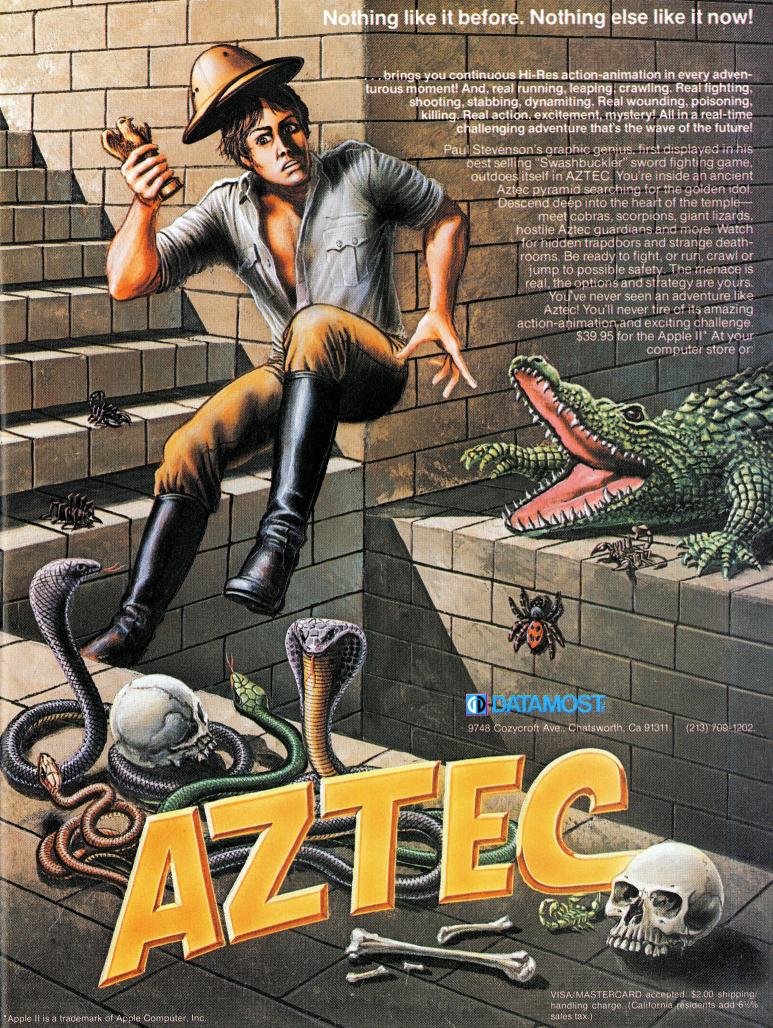
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# TEXTFILE

You hold in your hands the largest APPLE ORCHARD yet, and a precursor of things to come. The largest article, in terms of space, is the second installment of William Harvey's landmark series on the "secrets" of professional graphics, including listings in BASIC and Assembly languages, and a hex dump. Copies of the first installment, which appeared in the September-October issue, are still available. The third installment will appear in our next issue.

We're in the process of going to nine issues per year; our next will be dated February 1983. It is scheduled to be issued January 20th, a date that we think will have great significance for Apple owners. The issue will contain an in-depth report on something we are all waiting for...don't miss it.

Joseph Sobel and Barry Bayer continue their well-received VisiCalc Tips and Techniques series, excerpted from their forthcoming book on the subject. Also with us are reviews of some helpful software items by Clark L. Congleton and Woody Liswood. Clark takes on Amper-Sort Merge II, and Woody covers The Word Plus. More word processing material is in the mill for future issues, including Word Juggler, WordStar, and Word Handler.

It's a bit like peeling an onion, this working with Apples. One thing seems inevitably to lead to three more. Neil Lipson's article on Speeding up DOS, which covers some approaches to that subject, has uncovered a hive of activity and other programs. An example is the package from Computer-Advanced Ideas. More on these will appear in a future article as well.

The US festival was too much of an event to ignore, but as you'll discover, it wasn't all rock'n'roses. It did bring people together, which is also the aim of the Peoples Message System now being operated by the IAC. Details are herein.

Finally, Ken Silverman, who has made a study of these things, shows us an array of items to which a certain logo has been applied over the years, and Mark Crosby gives us a few suggestions for Christmas stocking stuffers in addition to the Forbidden Fruit new product listings.

Our editorial on consultants brought forth a letter from Pat Caffrey, and information about the Software Pro's Job Registry, a referral service for the software profession. To register, or to find help, call (415) 887 - 2687. And let us know how you fare.

## Uncle Lou Wants You

You may notice some changes on this magazine's masthead page. These are the result of Lou Milrad's activity with Special Interest Groups (SIGs), which are becoming more active. What's needed are more of you who are sufficiently fanatical about a sub-topic of our favorite computers to generate and to share information with the rest of us about that topic. Examples: Engineering, CP/M, Accounting/Business. We need SIG Chairpersons and committee members. "Compensation, working conditions, and recognition leave much to be desired," says Lou. "Rewards are also questionable. Immediate openings are available in these areas:Medical, Legal, Handicapped, or any other area that you feel should have a SIG." Contact Lou Milrad, (416) 222-8447.

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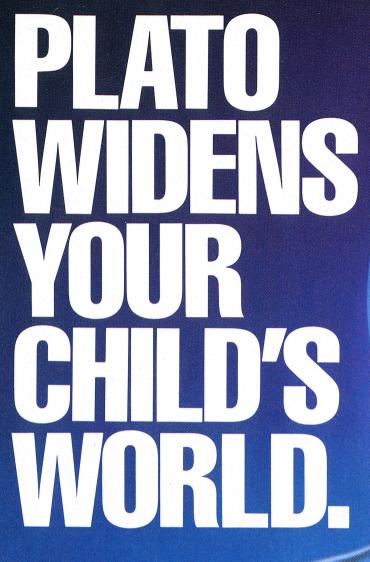
The PKASO interface is designed for Apple II and Apple III in all the popular configurations. It prints in full color on the IDS Prism Printer, and in striking black on C. Itoh, Centronics, Epson, IDS, NEC, and Okidata matrix printers.

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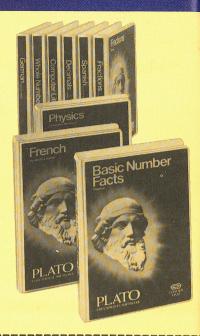
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• Basic Number
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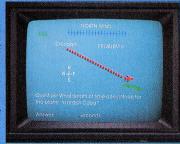


in these math areas. Designed for elementary school age, or any child who needs practice with basic whole number operations.

- Whole Numbers: simulates a pinball game to hold and build interest in whole number operations. Problems include addition, subtraction, multiplication, division and mixed numbers. Designed for elementary and junior high age groups.
- **Decimals:** kids are challenged to break balloons by entering the correct decimal corresponding to the position of the balloon on a vertical line. Numbers are entered on a trial-and-error basis. Software automatically adjusts difficulty to the child's performance. For elementary math students.
- Fractions: same format as Decimals, but requires the use of fractions to break the balloons. Numbers are entered on a trialand-error basis. Balloons may burst in any order until none are left. Difficulty adjusts to your child's performance. For elementary math students.

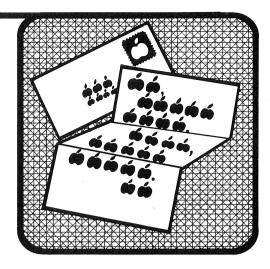
- Computer Literacy—Introduction: this lesson is presented in a friendly, non-intimidating manner with touches of humor and simple, supportive graphics. It presents the history and uses of computers in today's society. Designed for junior or senior high and vocational school students.
- French Vocabulary Builder.
- Spanish Vocabulary Builder.
- German Vocabulary Builder: students are presented with a basic vocabulary of 500 words, including useful verbs, number words or common words for traveling or in the home. Groups of related words give learners context and similarity clues, which help increase foreign language skills. Lessons supplement introductory and/or refresher coursework.
- Physics—Elementary Mechanics: provides a problem-solving test in the elementary mechanics of physics. Students are shown a physical problem; then must "purchase" the missing information

needed to answer it correctly. The emphasis is on understanding the problem, rather than just supplying the correct answers. Designed for senior high age level.



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# Letters to the Editor



A Consultant Replies . . .

Regarding your Planting a Seed editorial, "The Smiling Consultants" in the September/October issue of APPLE ORCHARD; If you wanted your watch back, why didn't you say so? As a consultant in microcomputer solutions and sometimes systems documentation, let me describe consultants and maybe offer some words of advice on finding one.

It's not that there aren't ripoff artists and, sadder, under-skilled hopefuls out there who don't provide value. They exist and will continue to exist. It's a buyerbeware market. But I think that too much of this business works by word-of-mouth for the bad apples to predominate.

Consultants provide services on as asneeded basis, with no medical benefits, no pension plan, no paid vacation, no assigned floor space (ask your boss what that costs sometime). And there are no days off, because weekend calls are the rule rather than the exception.

The essence of consulting is keeping knowledgeable and current, and making that available to a client. It may lead to programming, but it most frequently leads to a list of software and hardware to purchase. Consultants are expected to be current on everything from the prices and specifications of dot-matrix and letterquality printers to the capabilities of any of the newest software packages advertised in any of half a dozen home, professional, and business magazines. My "information please" phone bills are proportionate to the things I don't know but am expected to know; the phone company likes

Time and effort does cost the client, though. Many businesses are bringing small systems into the office for between \$2,500 and \$10,000, instead of the \$60,000 and up it used to cost. More systems and combinations are available from which to choose. In that range they

are getting word processing, "anyCalc", hard and floppy disks, operating systems, the works. We get a lot for our dollars these days, and it's getting better. But the consulting fee compared a lot better when the whole system cost \$60,000.

I have no complaints. The work is there to do (with occasional slow periods), and my work has always saved the client money in the long run. It's worth every penny (all right, dollar) it costs. That doesn't include money saved by clients through phone conversations for which they received no bill.

Let's look at your other question: why can't I sit down after a two-hour meeting, ballpark a system design bid, and then stick to it? It's because things have a habit of changing. Here's an example of the consulting process, and how you can deal

To find a consultant, a good technique is to ask for a recommendation from a vendor, or another user who has been there. Almost all of my work comes from recommendations; people who know my work are asked by others for a name.

First contact: you describe the trouble and the hoped-for solution. I don't charge for this meeting. I provide a resume and phone numbers of previous clients, to establish credentials. Better than half the time, this visit solves the problem. (Buy anyCalc, YackModem, Databaseball, etc.) The user has received some free consulting. That's OK with me; he has friends too and will remember that I was involved in a solution.

Second contact: we begin to get down to defining the problem. I learn what must accomplished, is vital, is merely desired, the forms to fill out, data to be stored and sorted, manipulated, etc. I charge hourly for this process, and this phase of the

project closes when I hand the client a document which states their intentions exactly and suggests approaches. If they never call me again I have provided value.

I will also make a bid stating the lowest and highest costs and time frame that can be expected to implement, based on the specification document. If the bid is accepted, I get started on that scope of work. The specification document is vital; changes to it are at an hourly rate, and then I re-bid.

I can continue with the checkpoints, billing time-periods, etc., but that's project administration. Let's boil down the consultation startup procedure (instead of the consultant):

A. Know what you want to do, as exactly as possible.

B. Get a recommendation from a friend.

C. Interview (and trust your feelings).

D. Get additional references and call them.

E. Use the analysis time to get a document which defines the problem. If the consultant moves away, you can still get on with the project.

F. Get lowest and highest project bids based on the analysis document and expect hourly charges when you change it. The further you get into the project, the more expensive changes will become.

G. Arrange milestones and when they are achieved, pay in reasonable time. A consultant will slow down to take other paying work if he/she is not being paid, as sure as gravity. 15-day cycles are reasonable; 30-day cycles are liveable, and anything longer doesn't work.

Now if you'll excuse me, I have to go wind some watches; I hope this has helped the process a bit.

> Morgan P. Caffrey San Francisco, CA

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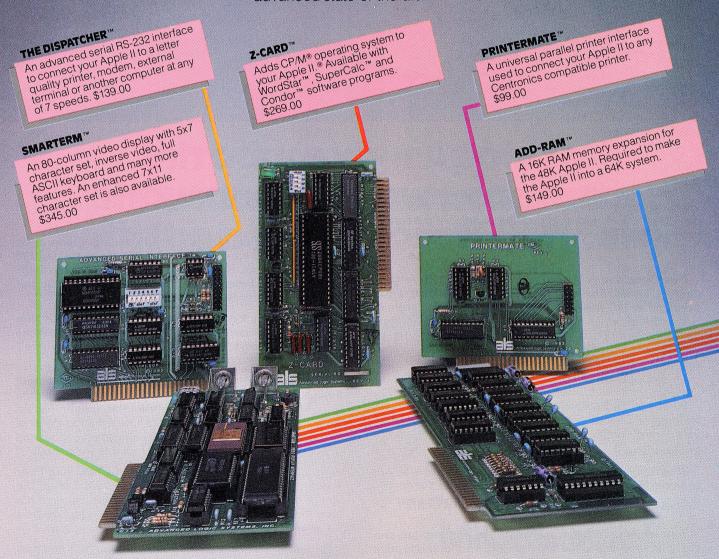
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# Print FRE(Ed)

by Val J. Golding

When the hour is late and the algorithms go awry, it is time to knock off, press «RESET» and reboot — to direct stimulus in new directions. A golden opportunity to remove the tiara of programming and put on our thinking caps.

New Directions. A catchword. Where is our club — your club - headed, and why? Are you, as an individual, if you belong to an IAC member Club, accepting your fair share of responsibility? When was the last time one of your officers polled the membership and inquired what service they would like to see the IAC provide, or how they could improve on what they now do?

When was the last time one of your officers contacted your IAC regional Director — who represents your Club with his/her vote — and complained... or complimented us... or even just said "Hello?

When did you, as Editor of your Club Newsletter, or as author of an article in it, call Peter Weiglin and say: "Peter, I've got this great program I wrote, and I'd like to share it with the other IAC Clubs. Would you take a look at it?"

Your regional Directors are volunteers, and they are also individuals you helped (we hope) to elect. Their duty is to point the IAC in the directions you indicate.

You've tried but you can't locate your rep? Fall back on the democratic process. Nominate one of your own next time around. Call Ken Silverman (he'll kill us for printing this). Ken is busy as hell, but when it comes down to it, he wants to hear your gripes and kudos.

We're concerned. Maybe "worried" is a better term. Is the IAC going to sit there and stagnate? Again, the answer lies with the member Clubs. Board Chairman Bernie Urban has some super ideas on better representation; variations on the one Club, one vote concept.

Bernie may be too shy to go out in print with his ideas. We hope not. This means you too, Bernie: speak up. Share some of your talent and good thoughts. Call Bernie or write him; he'll be eager for your input.

The same applies to us. We'd like to know your ideas and thoughts. Do you have a wild scheme you think could better the IAC? Tell us. We'll print it if you ask. This column has no restrictions (nor does anyone's). When we retired as Editor of the APPLE ORCHARD, we asked what we should write about, and were told, "Val, write about what you want to write about."

We pass this on to you verbatim. Let us hear your inner thoughts. We are over 400 Clubs strong... or is it weak. The silence is deafening. "I can't hear you." Communication is a two-way sreeet. Trite expressions, yes; but we can't devise a better way to put it.

A final espousement: please "GOTO 0". Go back and read through with us a second go-round.

IAC is your club; let's treat it that way. Let's find out where we are going.



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SoftCard system, your Apple becomes two computers. One that runs Apple software, another that runs CP/M-80. Which means you'll double the utility of your computer.

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software. Products that work. Products that are constantly being enhanced. And when the enhanced versions are ready, we make the enhancements available to our customers. Like the 60K enhancement for the SoftCard system. That kind of product support is just one of the ways we earned our reputation. Ask your dealer. Ask about the superior applications programs the SoftCard system makes available to your Apple. High quality programs for almost every area of home, business, and professional use. Then, ask for a demonstration of the complete Microsoft SoftCard package...and any of those thousands of new programs you can introduce to your Apple. BETTER TOOLS FOR MICROCOMPUTERS

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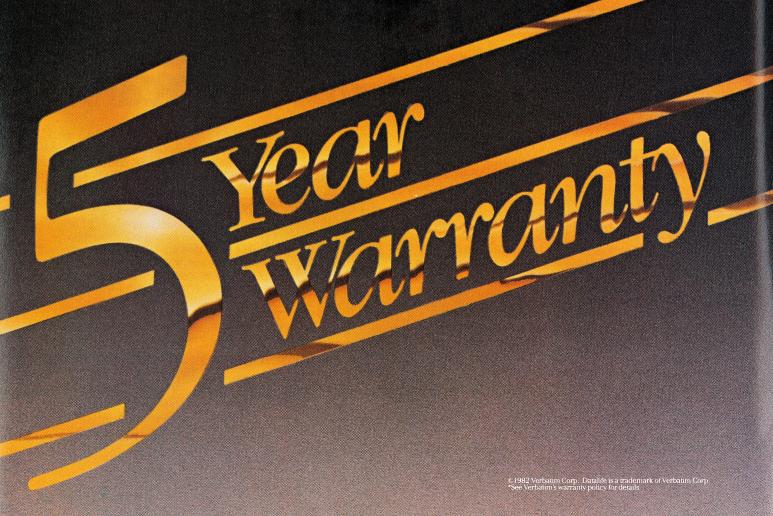
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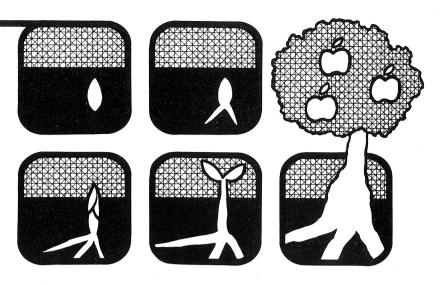
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# The Joys of Obsolescence

"Darn; every time I get ready to make the decision to buy some major component, the word arrives about some new product in the pipeline. I wish things would hold still long enough for me to settle on something."

The speaker, curiously enough, is a person who has himself contributed mightily to a number of new and improved software products. But he was talking about hardware; one of life's minor ironies.

Obsolescence brought on by a continuing parade of new and improved products can affect us in two ways: either by inducing frustration because the thing we have is not the latest or the newest, or by causing us to delay purchase of an item "until the new model comes out."

Fact is, there's always a new model "coming out". The only constant is that there will be change, because people are continually working on improvements to everything. Not to bedevil us users, but to meet or to stay ahead of competition. As the electronic worksheet manufacturers found out spectacularly not too long ago, there's always something better, or less expensive, or both, in the pipeline somewhere.

Which is how we get new versions of things, carefully catalogued with decimal numbers ("I have Version 7.02, which cured a bug they found in Version 6.94 . . . . ") Of course, each manufacturer has his/her own idea of a proper numbering system, and a proper policy for letting (or not letting) everyone know that there's a new version with the bug fixed, etc. The numbering system is derived from military and NASA contracting; its application to some software products is so incongruous as to provide a little amusement while you try to figure out what's going on here. ("No, Version 3.1 only works with hardware Revision 5 or higher, unless you have the 4A Adapter, or the S2X Mod hard-wired . . . or is it . . . . ")

Never mind. We cheerfully acknowledge that trying to outrun obsolescence can be a nuisance; so why bother? The truest of truisms in this field is that what works for your individual group of needs is what you should get, and stay with. until and unless your needs change radically enough to warrant reevaluation. Chances are that'll happen soon enough.

We're happy to present that parade of new and improved stuff in our Forbidden Fruit section of "temptations, delicacies, and necessitites" for your Apple. But as long as what you have is doing your job, don't get upset because some new product might do it better. And don't put off getting what you need because something better is rumored to be on the way. New products are rarely "on time" anyway, and if a presently available product meets your present and reasonable future need, why wait?

You, and nobody else, call the shots on obsolescence as it applies to you. You thus create your own joy. Or sorrow.

# Speeding up DOS

by Neil D. Lipson, P. E.

HIS ARTICLE began as a review of only one program, Apple Flasher, from Crow Ridge Associates, Inc. However, that program's author, Paul W. Mosher, M. D., suggested that we might look into and review several other DOS function speedup programs of which he was aware. A phone call to Microseeds, publishers of one of those programs, brought word of yet another approach to speeding up DOS functions, this time through a hardware enhancement: the Synetix Disk Emulator. One thing having led to another, here is a comparison of three programs which use the software approach but which do somewhat different things; a new and exciting disk emulator card, and also some tricks you can consider in getting DOS fast enough for your particular application.

The idea that there are variations in DOS speeds, or that there is any need or reason for a faster DOS, may require a bit of clarification here. A DOS is a Disk Operating System; the program that connects the disk drives to the computer, manages disk storage space allocation; and translates and untranslates the computer's signals into magnetic blips on the disk surface. The most widely used microcomputer operating system is CP/M (Control Program for Microcomputers), used with 8080 and Z80-based machinery. Running second is Apple's DOS 3.3, for the 6502-based Apple II computer. Other systems include Apple's Pascal system, and other proprietary brands. (A more thorough explanation may be found in "Hello, Operator?", by Joe Budge, in the May-June 1982 Apple Orchard.)

The original Apple DOS was... well, the less said about it the better. Y'see, there's this continuing improvement. I remember DOS 3.1; then DOS 3.2; then DOS 3.2.1, and now DOS 3.3. Rumor has it that DOS 4.0 is not too far away, but that there are some design difficulties with it. The problem has been that new DOS revisions have had to be constructed with an eye toward compatibility with not only past versions (well, semicompatibility, anyway, which is a self-cancelling phrase, isn't it, Woz?), but also must allow for differences in system configuration (as with different memory sizes; the DOS must work as well with a 32K machine as with a 48K machine; with or without language card, etc. This results in some compromises, which usually sacrifice speed to check out and account for all of (well, most of) the possible system variations as the DOS does its work. (See comment on the ephemeral DOS 4.0, above. --

So, we wait 30 seconds while DOS 3.3 boots and loads a Language card with the 'other' language . . . every time. And we wonder why it doesn't take as long with the BASICS disk.

Well, it doesn't take as long because that's a different boot program on there; a faster one. And we become impatient, and some of the people who become impatient have developed improvements to the DOS. Some are printed in magazines, and some are marketed commercially. Most of those improvements in speed require some tightening of a procedure or parameter; as I said, the tradeoff is between speed and flexibility. For example, the memory size question: I personally do not know of anyone who is now using less than 48K, and would question the sanity of anyone who doesn't upgrade to 48K (memory chips at this writing are about 8 for \$13). Of course, at one time, the same 8 chips cost more than \$250, which explains why many early Apple II's came with less than 48K.

This is not the place for a discussion of the various software approaches to speeding up DOS, as these methods are discussed in detail in several places including the book "Bag of Tricks" by Quality Software. One method involves reading the information on a disk track in only one revolution of the disk instead of two or more revolutions. I am told that because Apple's DOS uses a single routine to load Text, Binary, and BASIC files, it is rather slow, but quite general. The fastloading programs use somewhat specialized routines, which speed things up. Fortunately, you do not have to tear apart DOS to implement these speed techniques, and the cost of the programs are well worth it.

So, let's dig into these DOS improvers; Apple Flasher (\$34.50) by Crow Ridge Associates, Inc., P. O. Box 90, New Scotland, NY 12127; FastLoad (\$24.95) by Microseeds at Lakeview Terrace, Stafford Springs, CT 06076; and FastDos (\$29.00) by Wytand P/L (of Australia) distributed by Beagle Brothers, 4315 Sierra Vista, San Diego, CA 92103. Each of the programs has unique features; to recommend one over another invites bloodshed; but we'll try to point out the differences and advantages of each.

I'm happy to say that all of the software is reasonably priced and well worth the investment. The hardware product is the Synetix Disk Emulator. The 294K "dual disk" is list priced at \$950.00, but it actually does the in-line work of two disk drives. The Synetix Disk Emulator is manufactured by Micro Computer Product Marketing, and sold through Computer Data Services, P. O. Box 696, Amherst, NH 03031. It is also being made available by A.P.P.L.E. in Seattle to their members. Whether this kind of investment is "reasonable" for you depends on your needs and budget. The results are nothing short of spectacular, when all of these tricks are combined into one program, running in a system with the Synetix card.

# Apple Flasher

Apple Flasher is a program dedicated to displaying Hi-Res pictures on a standard Apple diskettes. Suppose you have 10 unlabelled diskettes with Hi-Res pictures (33 or 34 sector binary files) on each of them, and you're trying to identify and see a particular picture. You wait about 10 seconds for each picture to load. Needless to say, you would waste quite a bit of time finding the picture you want. It can take 1500 seconds (15 pictures per disk times 10 seconds per picture times 10 disks) just to load these files into the Apple's RAM so you could see them. You'd also have to type BLOAD 150 times, 150 file names, and CATALOG 10 times.

Apple Flasher does all the work for you, and at only 2 seconds per picture file. The pictures literally flash onto your screen from the disk. Disks are scanned automatically for "picture files", and disks without such files are identified in 1.5 seconds. All other files are simply ignored! For graphics work this program is indispensible. It appears that Dr. Mosher has spent many hours debugging this program and making it user friendly, and the result is about as close to perfection as you can get.

Just about all of the commands are issued with a single keystroke, so Apple Flasher is fast in operation. The program has some of the best error trapping that I have seen. You can return at any time to the menu by pressing **ESCAPE**. The program scans the disk at high speed (it also boots in high speed), and displays all of the names of picture files, each with a key letter. To examine Picture B on Drive 1, type "B". To examine Picture H on Drive 2, type "2H".

The Scan function does exactly what you think: it automatically scans the disk, showing a new picture every 1.5 to 2 seconds. Pressing the spacebar during the scan or during the halt will display picture information on the bottom of the screen. Press the spacebar again, and you have the full picture again.

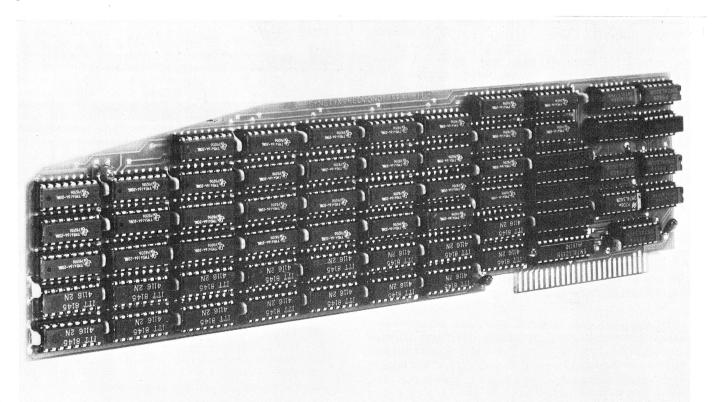
The Projector mode imitates a circular tray slide projector; using either game controller or the arrow keys, you move the picture display to the next or previous picture on the disk. A remarkable feature of this mode is the simultaneous loading of the "next" and "previous" file along with the picture being displayed, so each picture change appears to take place instantaneously going either forward or in reverse. It allows you to imbed in each picture file the time interval for displaying that picture, up to 4 minutes, and then cycle continuously through all the pictures on 1 or 2 disks. This is very useful for displays at shows or demos, for example.

The Program is so well documented, that it almost doesn't need a manual. However, an excellent one comes with it. The loading of Hi-Res pictures is faster with this program than with any of the other programs discussed here, but keep in mind, it was designed specifically for this purpose. I do not recommend using it with the disk emulator because the disk is copy protected and cannot be loaded onto the disk emulator card with the present software.

### FastLoad

We now come to one of my favorite programs, FastLoad from Microseeds. This program will dramatically speed up LOADing and BLOADing all program files from the disk. In addition, and this is a big plus, it can be used with the disk emulator to give almost instantaneous loading of files. It does not speed up loading text files under BASIC as this is more a function of BASIC than DOS. However, it is great for loading any other type of file. Here are some examples of speeds with and without FastLoad:

Type of file	Size	w/o FL	w FL Hi-Res
Picture FPBasic IntBasic Typ.Basic prog Large program	8K 12K 12K 16K 32K	10.3sec 13.9sec 13.9sec 17.7sec 31.5sec	3.5 3.5sec 3.5sec 4.8sec 6.2sec



To make room for the FastLoad routines, the INIT command was removed from the program. Dave Winzler, who wrote FastLoad, is a programming genius. He wrote many other similar programs such as Mon + to enhance the Apple monitor, DARK to automatically repair damaged information on a diskette, and he distributes BTRAN, a very sophisticated communications program. He also has other interesting programs on the way.

To use FastLoad, you have a few choices. The disk is not copy protected, so it makes backups possible and allows using the program with the disk emulator. You may BRUN FAST-LOAD/DOS, and until you reboot, it is in operation. If you need both the FASTLOAD and the INIT command, use FASTLOAD/-ONESHOT. You can turn it on and off with the command FAST1 and FAST0.

FASTLOAD/ONESHOT is used for a single fast load. You can reactivate it with a CALL 624. You probably will not use this much, but it is nice to have.

UPDATE DOS will do exactly that, or in other words will update the DOS on an existing disk to become a fastloading DOS.

In using FASTLOAD for some time now, I have found no bugs or problems. This program will not let you BSAVE or SAVE files any faster than DOS, but since most people load about 100 times more than they save, this should not present a problem.

# The Synetics Card

In researching the fastloading programs, I found the ultimate to be a hardware entry, The Disk Emulator from Synetix. While there are many RAM expansion cards, to my knowledge, this card is one of the very few true disk emulating cards. The list price for the single disk version (147K) is \$550, and the dual disk (294K) is \$950. But keep in mind that it will actually replace one or two of your disk drives. (At least, while you are working; a drive will still be necessary to work with actual disks.) The card works with CP/M, DOS 3.3, and Pascal, and will work shortly with VisiCalc. It will operate in any slot (1 to 7) and everything is on one card. The single disk card can be expanded into the dual disk version by plugging in the TI RAM chips to yield a 294K version. There is no need for any jumpers, as they used the better 64K chips, which is nice if you don't have the bucks now for the two disk version.

The card is a marvel of engineering. Power requirements are only 200MA for +5volts, 5MA for -5volts, and 8MA for +12 volts. The card is warranted for 6 months, and comes with diagnostics. This card has more potential than almost any other card I have seen. For example, because all DOS functions are speeded up, even text files run much faster. Loading, saving, you name it (DOS related) will run faster. No noise, no mechanical wear, it was just sheer pleasure. It lets you do fast copies of diskettes whether it be DOS 3.3, CP/M or whatever. The only thing that holds you up is the mechanical drive with the target disk. High speed DOS 3.3 copying is now possible for the average user.

With this card and FastLoad, you have an unbeatable situation. Hi-Res pictures will appear at the rate of approximately 6 per second. In fact, I'm planning on using picture compression from some public domain software I received and hope to better this to 10 frames per second or more. There is, of course, no way to compress pictures without loss of detail if they contain much information (such as in digitized photographs),

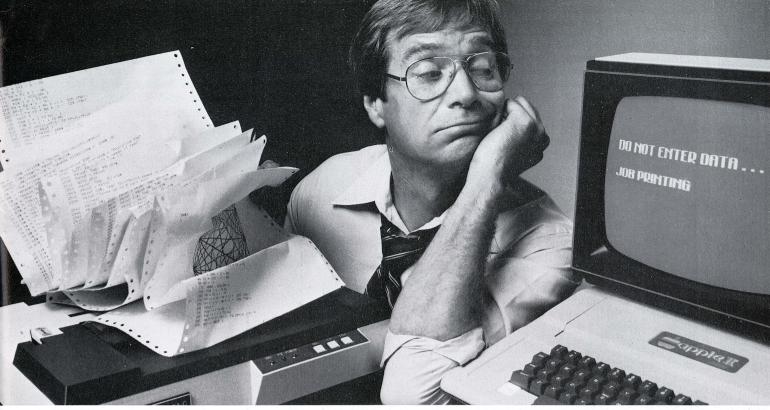
and some methods actually will make certain files longer! Possibly, however, with certain kinds of material it will be feasible to reach speeds of 10-20 frames per second. You will not lose detail, however, on something like a graph. To speed up the decompression process, compiling will help out. This will also speed up text files. The day Apple comes out with a faster DOS, then this will increase even further! Normal motion picture is 24 frames per second, so we are close to that! DOS, in general could be much faster than it is now. Any improvement in DOS will make the same corresponding improvement in the Disk Emulator card. So if DOS speeds are cut in half, so will be the emulator speeds.

The limiting factor here eventually becomes the Apple's clock and the 6502 itself, which can move a complete 8K picture file in no less than 1/8 second from a storage area in RAM to the Hi-Res pisplay area. Compressed files will take less time to move, of course, but then you need time for the unpacking routine to do its stuff.

The Disk Emulator comes with three diskettes to cover most applications. The use of the card is extremely easy: merely boot up the special disk, and it initializes the emulator. You then set up which drives read and write, and then dump onto the card. You also have the choice to set the card up as a 32 sector "disk", if for example, you have some really large text files. However, you can't dump this data back to the normal Apple drive. If you want to use FastLoad in addition to the card, BRUN FASTLOAD/DOS. You may say, "Well, why can't I just use a disk modified with FASTLOAD?". I tried it and it didn't work. You must run the FASTLOAD/DOS to a clean 3.3 DOS or it bombs. When you are all finished and you want to save everything back to the regular drive, use FID, or COPYA.

In using the Disk Emulator, it acts just like using a regular drive. Everything else is normal. One problem you could run into is if you are saving information on the emulator, don't





# If your printer uses your Apple more than you do, you need The Bufferboard.

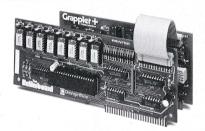
If your Apple is locked into the "PRINT" mode so much that you've taken up solitaire to kill the boredom, you need a buffer. And if your computer is the Apple II or III, the only buffer for you is The Bufferboard. Expandable to 64K of storage, The Bufferboard stores an instantaneous **bucketful** of print data from your computer. Then it feeds the data to your printer at its own printing rate. Your Apple is set free from driving your printer and is ready for more data from you.



# Take your existing interface—and buffer it!

Only The Bufferboard has a simple Interface-Docking System. No bulky boxes

or expensive power supplies are needed because The Bufferboard fits right into your Apple—and **docks** onto your existing printer interface. The result is convenient



and economical buffering of most popular printer interfaces, including the Grappler +  $^{\rm TM}$  interface, Epson interface, and Apple printer interface. Thirty seconds and a single hook-up are all you need to end the printer waiting game forever.

# Up to 20 letter-size pages stored at a time.

The Bufferboard comes standard with 16K, and is expandable to 32K or 64K of buffering capacity with the addition of

memory chips. This "bucket" will hold up to 20 pages of a print job, allowing you freedom to use your Apple.

# The Bufferboard—designed exclusively for the Apple Computer. Specifications:

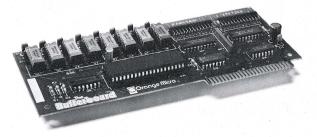
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forget to save your data back to the regular disk. I would never use it under these circumstances as either I'm afraid of a glitch in the power lines, or forgetting to dump it back when you turn the Apple off. Most applications really need fast text files and fast loading, so this should not bother things much, unless you are adding data to text files. If you do, then make sure you have some additional filtering on the supply line of the Apple so one glitch doesn't destroy a day's worth of work. Also, if your Apple frequently does strange things, then save back to the "real" disk every so often. That way you can't go wrong (the new bubble memory cards coming out for the Apple will solve this problem too!)

I have not tried the card with Pascal, or CP/M, but the results should be similar. I wondered why the card was sized at 294K instead of 2 times the normal 143K that DOS 3.3 has. In addition, I wondered why if the card has 32 of the 64K chips and 16 of the 16K chips where the extra memory was used for. (I sure wonder a lot). The answer is that there is an extra 4K on the board that at present is not used.

### **FastDOS**

The disk emulator and FastLoad seem like a winning combination. However, there is still one more program I wanted to review. This is FastDOS by Beagle Bros.

This program costs \$29, \$5 more than FastLoad, but in addition to faster loading, it also has faster saving routines. This particular program disk is copy protected, and any disk you modify for FastDOS will have an uncopyable DOS on it. However, they do provide a very fast copy program that will

copy Tracks 2 to 22 to an initted disk; you simply update with FastDOS. The INIT command still functions in the updated disks, but creates disks that have no DOS on them at all (data disks). Curiously these disks do not allow storage on Tracks 1 and 2. The INIT command also still requires the name of a greeting program which gets saved even though this becomes meaningless, in order to maintain compatability with normal DOS programs which might initialize disks from within the program itself. I'ts possible to change these features, however, without violating the copy locks, according to the word I received from an advanced programmer. This program was about as fast as all the others, and was quite easy to use. However, you can't back up the disk, and you can't use it with the Disk Emulator. This is unfortunate, but is the only drawback to the program. The documentation is excellent, and there were no bugs that I could find. Unfortunately there were not as many features as FastLoad (like the FASTLOAD/DOS), but in general it was a good program.

All in all, I was quite satisfied with all three programs, and the Solid State Disk Emulator. Each has its advantages and applications. If you have a need for user friendly high speed graphics, use Apple Flasher. One additional point that I did not mention is that your diskettes will last about three times longer with these fastloading programs. If you just want very fast loads in general, with the prospect of buying the Synetix card, use FastLoad. If you need fast saving, you will have to use FastDOS, but this can't be used with the Synetix card. You must look at your particular application and make a choice. Probably DOS 4.0 (or whatever comes next) will incorporate many features these programs offer — but that event may take a while yet

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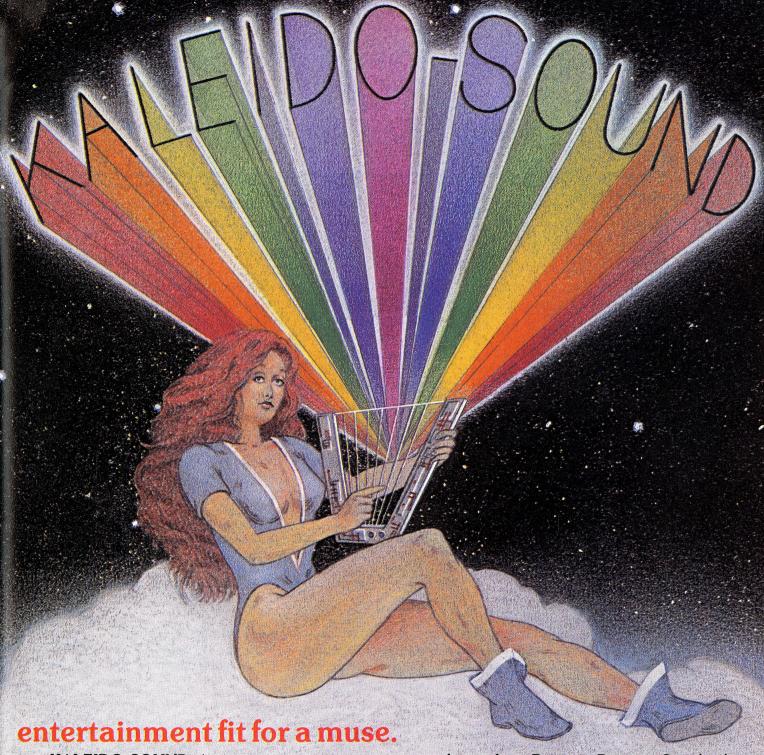
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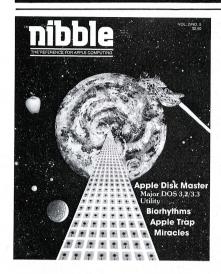
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# VisiCalc Tips and Techniques

# Part 3: Some Advanced Techniques

by Joseph J. Sobel and Barry D. Bayer

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N THE LAST couple of issues, we have discussed VisiCalc basics, printing, saving, and some of the products which can be used with VisiCalc. In this installment, we will continue with more VisiCalc "practice tips", and a detailed discussion of a most powerful aspect of VisiCalc, Boolean operations. Comments from user groups, and responses to these and other articles have convinced us that the full power of Booleans is not well understood among the nonprogrammer class of VisiCalc user.

# **Additional Tips**

Where appropriate, horizontal and vertical windows, synchronized or unsynchronized, may be used to simplify data and formula entry, especially during the Template design stage. When properly placed and used, the windows may allow you to view Cells which must be referenced in the formulas being entered. This will eliminate the need to cursor around the worksheet searching for the appropriate references. When entering a formula you can reference Coordinate locations in the other window by using the ';' command to move to that window. You may then move the Cursor within that window to the proper location. When you enter the next operand in the formula the Cursor will return to the originating window at the Cell where the formula is being entered.

VisiCalc has no way of saving the formulas and labels on just part of a worksheet. If you have a rather large worksheet and you want to save a block of labels and formulas for use in another worksheet, try Blanking out the Cells that you don't need, and saving the remainder that you do want. The best way to do this is to Replicate ranges of Blank Cells into the Cells with unwanted formulas and data. Using Replicate, you can Blank hundreds or thousands of Cells using only a few keystrokes.

Remember, the first Cell you Replicate must be a Blank Cell which must not contain any formatting commands, such as '/F\$', unless you actually want those formats at the Replicated locations. The remaining portion of the worksheet containing the labels, data and/or formulas you want to copy may now be saved using the '/SS' command. When reloaded to a blank worksheet, this Template will load in at the same Cell Coordinates from which it was saved. (A discussion of 'Overlays' will appear in the next issue.) If you must change locations of the partial template, you can do so by Moving and/or Inserting Rows and Columns. Of course, you could also use the VisEXEC files we discussed last month to do your moving and inserting.

VisiCalc "...retains and rounds to 11 (and sometimes 12) decimal places" within each Cell location but may display fewer characters on the screen depending upon local and global formats, etc. If you require that amounts be rounded to dollars and cents, etc., for both display and future computation purposes use the formula in the VisiCalc manual:

(@INT((expression)\*100 + .5))/100

Your formula would be inserted into the above rounding formula in place of "expression". If you need to round to, or display in, some other level of precision you may adjust the formula accordingly. Three decimal places will require multiplying and dividing by 1000, one decimal place by 10. Remember, /FI only rounds numbers for display purposes, it does not round the results of formulas retained in the Cell for computation purposes.

When summing a range of Rows, it is a MUST to include, in the @SUM formula, the "underlines" under the Column heading and after the last figure to be included in the total.

These lines (----) representing labels, or any other labels you may be using, will be evaluated as zeros and will not affect the totals, but the range formulas will automatically adjust to the expanded or contracted range. Otherwise, if t;e Rgw or Column that has been deleted is the last Coordinate included in the formula, the formula may now read, in part, '...@ERROR', and any references to the deleted Cells will show ERROR. After deleting or inserting a Row or a Column, check any formulas which summed a range that included the deleted Row to be sure the formula is still valid. Even so, after you have completed major revisions to a worksheet it is a good idea to print the Coordinate formulas using VisiCalc and review them for any errors created by the changes.

While we're on the subject of reviewing Templates, if you have a Template which consists of numerous Rows of information, all of which are the same, except for relative Cell references, you can delete all but one or two Rows. Now print out the formulas with the /SS,S1 command. The resulting listing will be shorter and easier to understand, but will contain all the information you need. This will facilitate review and save paper. Of course, remember to save the Template prior to deleting the Rows which aren't needed for review purposes.

Minimize the use of forward references whenever possible. Forward references are formulas containing a reference to a Cell which will be calculated (or recalculated) after the Cell containing the formula itself. (Note that a "forward reference" to a numeric cell does not result in problems.) The result is that the forward referenced Cell will not necessarily contain the proper calculation result since the formula at the referenced Cell has not been calculated as yet. In these instances an additional recalculation is necessary to obtain the proper result for the forward reference formula.

A further note of caution!! It is possible, in a highly complex Template, to require 10, 20, 40 or more recalculations to obtain the proper results throughout the entire Template. One way to avoid this problem is to carefully plan your worksheet so that all required data is computed before it is needed. However, this is not always possible; in those cases great care should be taken to determine and document the required number of recalculations to obtain a correct Template.

You will also find that the number of recalculations necessary when a Template is first loaded may differ from the number required when making a change to one or more values on the Template. You may want to include instructions on the worksheet itself relative to the number of recalculations required, etc. By saving the worksheet with the Cursor located at the beginning of the instructions, the instructions will be the first information you or another user will see when the Template is reloaded. Again, be careful! Sometimes, merely changing the order of recalculation from Columns to Rows or vice-versa will solve all or some of the problem.

### **Booleans**

A memory location in a digital computer usually can assume one of two states, which are usually designated as 'ON' or 'OFF', or '0' or '1', and which, by extension, are also sometimes deemed to refer to TRUE or FALSE. These values of TRUE and FALSE can be given to certain types of variables which are used in Symbolic Logic. Symbolic Logic is a branch of mathematics dealing with the field of Logic, or a branch of Logic dealing with symbolic or mathematic like notation of syllogisms. This subject was developed and popularized by George Boole, a 19th Century English Mathematician and Logician.

These so-called 'Boolean values' and Boolean operators which enable the programmer to compare two numeric variables and determine whether the first value is equal to '='. greater than '>', less than '<', greater than or equal to =>', less than or equal to '<=' or not equal to '<>' the second value. This is a very important part of computer programming. Boolean values and operators, and various built in Boolean functions add considerable power to VisiCalc. For those readers who are unfamiliar with these concepts, (and maybe for those who may not have seen Boolean Algebra since College) a quick, and (we hope) painless, presentation of the subject may be in order.

For the purposes of this article, a Boolean expression is assumed to be an expression which contains one or more of the operators = < >, and will usually have a value of TRUE or FALSE. Perhaps the simplest of the built in functions are '@TRUE', which results in an expression which always takes the value TRUE, and '@FALSE' which will always cause a Cell to assume the value FALSE. Thus, placing '@TRUE' in Cell A1 will result in the value TRUE being placed into Cell A1. Subsequent references to A1 will evaluate as TRUE.

More importantly, we can obtain Boolean values without placing @TRUE or @FALSE in a Cell ourselves. For example, the expression '1 = 5' has a Boolean value of FALSE, while '1 < 5' is TRUE. Therefore, placing '1 < 5' in Cell A1 will result in the same display and have the same effect as placing @TRUE in Cell A1. Similarly, if A1 and A5 have numeric values, the expression 'A1 < A10' placed in Cell A12 may result in a Boolean value of TRUE or FALSE. (A1 and A10 can be thought of as algebraic variables, or as the values present in the named VisiCalc Cells. Coordinate A12 will evaluate as TRUE, if the numeric value of A1 is equal to the numeric value of A10, or FALSE, if the values of the two variables differ. Of course we can also compare '2 \* 5 12' to '17/32', and obtain a Boolean result.

Next we come to 'And' and 'Or', and their analogous built in functions, @AND and @OR. 'And', sometimes called a Conjunctive Operator, tests whether two conditions are both TRUE. An expression consisting of the two expressions '1 = 1' AND 'A1 = A2' is TRUE only when each of the expressions is true. This definition of AND may be shown in something called a 'truth table', as displayed in Figure 1.

One can see from this table (which was implemented on VisiCalc, by the way) that if each element in a column is TRUE, the "conjunction" (combination) or "and" of the elements is TRUE. If any one of the elements is FALSE, the conjunction of the elements is FALSE. In VisiCalc, this "conjunction" is represented by the @AND built in function. @AND works exactly as in the truth table above.

A truth table for the disjunctive 'OR' is shown in Figure 2.

Once again, this "disjunctive" OR (one, another, both or all) works the same way as VisiCalc's @OR built in function. If any of the elements is TRUE, then the entire function has a value of TRUE. Only if all of the elements have a value of FALSE, is the entire statement FALSE. Note that the standard Boolean definition of OR that we, and VisiCalc uses is the so-called nonexclusive OR, sometimes represented in overly careful legal prose as AND/OR (Note: Co-author Bayer, an attorney, requested that we insert "and/or OR/AND" at this point. Please forward nasty letters directly to him. — PCW.), as it includes the case where each of the elements has a value of

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TRUE. To put it another way, if @AND(B1,B2,B3) is TRUE, then @OR(B1,B2,B3) is also TRUE. However, if we know that @OR(B1,B2,B3) is TRUE, we really can't tell whether @AND(B1,B2,B3) is TRUE or FALSE. But, the inverse is not necessarily so. IF @AND(B1,B2,B3) is FALSE, we cannot determine, from that information alone, whether @OR(B1,B2,B3) is TRUE or FALSE. The tables in Figures 1 and 2 were initially constructed on a VisiCalc Template using the @TRUE, @FALSE and @IF functions of VisiCalc itself to produce the results on Row 5.

This sneakily introduces us to our next topic . . . IF. Figure 3 represents a truth table showing the relationship between element A1 and element B1, with the logical formulation IF A (is TRUE) then B (is TRUE).

Note that this IF statement evaluates situations where both A is TRUE and B is FALSE. However, it doesn't provide us with an alternative if A is FALSE. Presumably, in that case, B can take either value, and the IF statement will remain TRUE. But A being true can tell us more than if B is TRUE. IF we can determine whether A is TRUE, and take one action IF A is TRUE, and a different action if A is FALSE (ELSE or otherwise), we are on the way to teaching our computer program to make decisions. (This is shown as standard computer "flowcharting" in Figure 4.) Such graphic display makes it clear what happens when A is TRUE and what happens when A is FALSE.

The VisiCalc built in function @IF acts much like IF, but adds the alternative ELSE, which tells us what happens when the first argument (A) is FALSE. For example, enter the following on a blank Template:

>A1:@TRUE >A2:@IF(A1,10,20)

This will display the number 10 in A2, IF A1 is TRUE, ELSE 20 will be displayed. As we'll see below, this added power will provide us with the ability to substitute complex expressions for the @TRUE in A1 above. Of all the Boolean functions, @IF is the most powerful. It takes three arguments:

- 1. A Boolean value.
- A value, formula, etc. to be returned if the Boolean (first argument) evaluates to True.
- 3. A value, formula, etc. to be returned if the Boolean evaluates to False.

Unfortunately, the explanation of the <code>PIF</code> function in the VisiCalc manual and related examples, limited to only eight lines, not only understates the power of this function, but may also mislead the reader into believing that only values or Coordinate references may be used as arguments. The examples given in the documentation include '<code>PIF(D5,E1,E2)</code>' where the first comma represents THEN and the second represents ELSE. Thus, the formula would be read as 'IF D5 is true, Then E1, Else E2'. The value or values resulting from the formulas at the referenced locations, i.e., E1 or E2 would be returned at the Coordinate location of the IF/THEN/ELSE formula.

After some experimenting, we find that these arguments, as well as the Boolean itself may be complex formulas. Other built in functions such as @AND and @OR may be used within these arguments. In addition, numerous built in functions, including

additional @IF's, may be "nested" in these Boolean operators. For example, we have used the @AND function within the first argument (Boolean value) of the @IF function and have also nested up to seven levels of @IF's within an @IF function. Following is an example of such a formula:

@INT(@IF(B18<180000,B18 \* C10 + .5, @IF(B18<250000,B18 \* C11 + .5, @IF(B18<280000,B18 \* C12 + .5,B18 \* C13 + .5))))

When Replicating such a formula to other Coordinate locations you are prompted for each of the Coordinates included in the formula as to whether they are to be "Relative" or "No change". The possibilities are amazing.

The DOS 3.3 version of VisiCalc contains the following Boolean functions in addition to those discussed above:

- 1. @NOT
- 5. @ISNA
- 6. @ISERROR

The @NOT function simply reverses the TRUEs and FALSEs. Therefore, @NOT(@AND(A,B,C) is, believe it or not, the same as @OR(A,B,C). To prove this to yourself, enter a truth table on a VisiCalc Template and observe the results.

Classically, Booleans were True and False. However, VisiCalc uses several additional new values which aren't actually True or False. These are @NA (Not Available) and @ERROR. When these 'values' are evaluated by other formulas they are evaluated and returned as NA or ERROR, not as zero as if they were labels. This may be useful in such applications as Lookup tables to signal an out of range error.

The formula in Column F in the example, is a Lookup formula [@LOOKUP(D5,A3...A9)] to bring the correct price into an invoice which may be printed from a VisiCalc Template (as will be covered in the discussion of Overlays next time). The extended price is merely a formula to multiply quantity by price per unit. Assuming that this company has no part numbers in excess of 11480, then the entry of any number larger than that will generate the ERROR message in the invoice. Cell B9 contains the formula shown in the above example. However, the actual display in the Cell would appear as ERROR without the '@' sign.

In our next article, we'll cover in some detail the concepts of overlays, the Data Interchange Format, and VisExec files. Before we go, however, a reminder. We have received some responses to these articles noting that we have not presented any large finished templates to accomplish one particular purpose or another, so that a reader may enter the information into an Apple and go. It should be clear by now that such was never our intention. Canned templates are available in the software market, and your authors participate in the preparation of some of them from time to time. It has been our experience, however, that the canned template is seldom exactly what is needed, and in the time it takes to alter the report format (and to make sure that extreme cases are handled properly), we might as well have done it ourselves. The purpose of these articles, therefore, is to give you, the VisiCalc user, a broad sampling of template design and usage techniques to enable you to go forth and design your own templates. We hope that this series is enabling you to do so.

H		D		-P				_H		
1 :		TRUE	FALSE	FALSE	FALSE	TRUE	TRUE	FALSE	FALSE	FALSE
21		TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	FALSE
31		TRUE	TRUE	TRUE	FALSE	FALSE	FALSE	FALSE	TRUE	FALSE
4										
5¦[Note	A)	TRUE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
61										
71 N	Vote	[A]:	The form	ula con	tained	in Cell	B5 is:			
81			@AND(B	1,B2,B3	)					
91			This for	mula is	replic	ated fr	om C5 t	o JS an	d all C	e11
101			referenc	es are	Relativ	·e ·				

Figure 1: @AND Truth Table

A	_B	_C	_D	_E	_F	_G	_H	_I	
1 :	TRUE	FALSE	FALSE	FALSE	TRUE	TRUE	FALSE	FALSE	FALSE
21	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	FALSE
31	TRUE	TRUE	TRUE	FALSE	FALSE	FALSE	FALSE	TRUE	FALSE
4 (									
5:[Note A]	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	FALSE
61									
7: Note	[A]: T	he form	ula con	tained	in Cell	B5 is:			
81		@OR(B1	,B2,B3)						
91	T	his for	mula is	replic	ated fr	om C5 t	o J5 an	dall C	ell
101		eferenc				•			

Figure 2: @OR Truth Table

	Example			
	1	2	3	4
When A is	True	True	False	False
When B is	True	False	True	False
If A then B	True	False	True	True

Figure 3: 'IF' Truth Tables

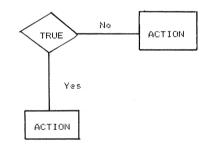


Figure 4: Decision Flowchart

	A	B	C	p_	E	F	G
1. ;	PART NO.	UNIT PRO					
21				INVOICE	PRICING	SAMPLE	
31	11475	21.85					
4 !	11476	1.01		PART NO	QTY	COST @	AMOUNT
51	11477	4.56		11476	4	1.01	4.04
61	11478	10.78		21478	6	ERROR	ERROR
7 :	11479	5.55					
81	11480	7.87		TOTA	<del>7</del> レ		ERROR
91	11481	[@ERROR]					

Figure 5: @ERROR Example

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VC Manager Micro Decision Systems	65	58
VC Loader Micro Decision Systems	65	58
VisiCalc® Formattings Aids Anthro Digital VIP II	45	39
Micro Sparc	30	27
Visualize (review models) Norell Data		\$ Call
VISICALC® TEMPLATES VisiCalc Business Forecasting Pkg. VisiCorp	100	88
Performance Manager (Analysis) Aurora Systems	75	67
SpreadTemps™ Sampler SpreadSoft™	, c	24
Calc-Plus Payroll/Dep/AR/AP/ Cash		
Micro Instruction Accuroi	170	156
F S M  QuikCalc Real Estate Analysis	40	36
Simple Soft Tax Planning Model	130	112
Panosophics, LTD	100	88
VISICALC® EDUCATIONAL PRODUC Beginning Level		
"Using VisiCalc®" 3 hr. cassette "The VisiCalc® Beginner"	60	52
3 hr. cassette SpreadSoft™ "Plan-Power for VC" (IBM)		30
Lesson disk A T I "Powersharing 5" videocassette	75	67
Stuart Comm  VISICALC® EDUCATIONAL PRODUC	250	210
Advanced Level "Boolean Logic Teacher"		
SpreadSoft™  VersaCalc (Apple 13/16 Sector)		24
Aurora Systems  VersaCalc® (Apple III & IBM PC)	100	88
Aurora Systems	150	139
VISICALC® RELATED HARDWARE The Keypad		
Keypad Company Key Wiz	150	139
Creative Computers Saturn Expansion Board 32K	299 239	269 199
VC Expand Software (40 column for Saturn board)	100	88
VISICALC® RELATED PUBLICATION	s	
SpreadCalc™ News & Review (12 months) SpreadSoft™		25
The VisiCalc® Book: Apple Edition Reston Prentice Hall VisiCalc®: Home & Office		14.95
Companion Osborne McGraw Hill		15.95
The Power of VisiCalc® Vol. One M I S		9.95
The Power of VisiCalc® Vol. Two M   S The Power of VisiCalc®		9.95
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# Review:

# THE WORD PLUS

# by Woody Liswood

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Published by:

OASIS SYSTEMS 2765 Reynard Way San Diego, Ca. 92103

Price: \$150

System: CP/M

Words, words, words, words. We all read, write and speak words. How many of us can speel (sic.) those same words? Besides, if you make as many typos as I do, you are probably driven insane by the ability of your personal/micro/desktop (I still don't know what to call this thing) computer to multiply the speed at which you can hit the wrong key. Don't despair. Help is here. The Word Plus can help solve many of the problems associated with spelling, writing, and editing your files.

Unlike other spelling checkers which are single stand-alone programs, The Word Plus comes as a series of programs and utility files spread over two separate disks. I reviewed the Apple version. Since this is a CP/M program, I could actually count the programs on the disk. The CP/M environment does not copy protect or lock the programs. Most of the documentation starts by telling you to make a back-up copy or two before you do anything.

The various programs can be run individually, or you can use a "master" program which, in effect, calls upon the various individual programs so that the system acts as if it really were one large program.

There are a number of CP/M Word Processing programs which have large followings. I used The Word Plus with WordStar.

First things first:

# **Programs**

Here are the programs that come on the two disks, with a brief explanation about what each does. Later in the review there will be a detailed description of the main spelling system as well as comments about how it works. This is a very sophisticated package. Don't just read the brief description and assume that you know all about it, because the detail is very, very critical to understanding how this system works.

The main control program is labeled TW. When you run TW, it acts as a master program which runs three other programs for you.

SPELL is the first of those programs. SPELL finds the misspelled or unknown words for you by reading your document and comparing those words to its 45,000 word dictionary or to a supplemental dictionary which you may have created to keep correctly spelled words which are not in the main dictionary.

REVIEW is the next program in the sequence. It takes the list of unknown and misspelled words and shows them to you one at a time for decisions. There are a number of decisions to

MARKFIX then makes the corrections to the document. Yes. that's correct. The Word Plus takes those corrected words and places them back into the document for you. You no longer have to use the "Find" feature of your word processor to go through your document and correct each of the words.

# Hyphens and Homonyms

HYPHEN will automatically hyphenate words which are of a certain length or longer using a hyphenation dictionary located on the disk or using some special rules. These are "soft hyphens" for WordStar.

LOOKUP allows you to enter a word that you may not know how to spell... you just enter in your best guess, and the program will give you a list of words which are similar in spelling to your entry.

FIND is a program for crossword puzzle lovers. You can say you have a word that is 15 characters long with a "r" in position four and a "q" in position 10. Then FIND goes through the dictionary to see if it has that word stored.

ANAGRAM finds anagrams. For example, you enter "star" and ANAGRAM will give you "rats" and "arts".

WORDFREQ will put together a list of words in your document and tell you how many times each of those words was used.

DICTSORT will read any word list or text file and alphabetize it for you.

WC stands for word count. Run WC and it will tell you how many words are in your document.

# **Problems**

I had no problems with this set of programs. It worked well, had no bugs that I found. I would make one suggestion. WC (word count) should be added to the TW program so that you are shown the number of words in the document during the spelling check program. The way it works now, the spelling check program only tells you the number of unique words and leaves out the total number of words. Oh well, things can't always be perfect.

### Documentation

The documentation was a stapled booklet which was three hole punched. It does the job. From my point of view, the documentation was to-the-point. When I needed to look something up. I was able to find it with no problems. What I also liked about it was that it did not spend pages telling me that I had just purchased the best, most absolutely fantastic, the greatest, the best selling, and the most magnificant solution to my only problem in the real world.

The documentation also contains some discussions about problems in writing, and in problems with compression 45,000 words to fit on a single 5-1/4 inch floppy disk. Those discussions were, in my opinion, very educational and should be read by any student of writing. They made the Documentation educational as well as descriptive of the programs.

For example, here's a quote from the Documentation. This is from a section called "THE SPELLING DILEMMA":

"Very few people have perfect recall when it comes to remembering how to spell a word. Everyone makes mistakes, usually because of the numerous inconsistencies built into the English language. The Word Plus will help you find and fix your spelling errors. But before we can show you how, we should talk about what we mean by a spelling error.

"Proper spelling of a word is often dependent upon how the word is used. In the sentence, "I would like a peace of pie', peace is spelled properly, but it is being misused. The proper word to use is 'piece'. Words such as peace and piece are called 'homonyms'. They are words that have the same sound but are spelled differently. Confusion of homonyms is a common 'spelling' problem. The Word Plus cannot automatically detect incorrect homonyms for you. To do so would require that the program 'understand' what you are trying to say, which is not a simple thing to do! However, the program MARKFIX can be used to locate and point out potential homonym problems. This will be described in greater detail later.

'The spelling checker will list some words as misspelled simply because they do not appear in the dictionary. This is to be expected because the dictionary is not infinite. In addition, many words which are unique to a particular part of the country, or which are technical jargon, will not appear in the dictionary . . . . "

See what I mean? A nice approach to education and discussion about the problems of spelling. The approach to the problems of homonyms mentioned in the above quote is a fascinating approach to the problem.

## **Error Messages**

There are numerous error messages built into the system. The one which I liked best is a self check as each of the programs run. If there are any problems you get this message: "\* WARNING \* This tool is damaged! Use another copy." If this message appears, you go back to your master and make another copy of the program. This was helpful. One of the original disks I received from OASIS had a bad sector. I got this message so I was able to quickly call OASIS and they sent a new disk by return mail.

Both are good features. First, the program told me that further use could "wreck havoc" (I guess it meant "wreak havoc") with any text file I tried to check. Second, OASIS responded immediately with a new disk. No muss, no fuss.

# Running TW

You can run The Word Plus from the CP/M prompt by keying in TW. If you already have WordStar booted, you can run the sequence from within WordStar and it will act like it is part of the program. Rather than key in S from the "NO FILE MENU" as you would to run SPELLSTAR (WordStar's spelling check program) you key in R (for the Run a program section of the menu). Then, you type "TW abc.doc" or whatever the name of the document file is and the entire system will run. Oh; when all is done, TW returns you to the WordStar NO FILE MENU.

# Spell

The SPELL program is used by the TW program. The only unusual thing to watch for is that hyphenated words are treated as two words, and the - is treated as a space. There is, however, one exception. If the hyphen is located at the end of the line, it is ignored, as are "soft hyphens".

What are soft hyphens, you ask? Well, WordStar, during forming of paragraphs with justified right and left borders will, if you desire, allow you to insert a hyphen into a word that should be broken between two lines. It is called a "soft" hyphen because, if you later edit the document and add or subtract text to put the hyphenated word in the middle of the line rather on the end, that hyphen will not print in any hard copy you make of the reformatted document even though it still shows on the screen when editing the document. If you are using an Videx board with an Inverse chip, then the soft hyphen will appear in your document in inverse.

The first time you use the SPELL program you go through a series of questions. Your answers are then saved as default values until you request a change in those defaults. The most important of those defaults, to me, is the ability to save "context information". If you respond "Yes", then you may view the potential misspelled word in the context it was used during the decision part of the operation. You can also, by defaults, name special dictionaries, ignore dot commands, ignore upper case words, ignore backslash comments (Magic Wand uses backslash rather than dot commands), and use any character you want as a marking character.

After your document is checked, SPELL tells you how many unique words you have, and how many words must have decisions made about them. You are given a menu which explains the options for each word. The menu looks like:

Add word to:

Other options:

**U**-pdate dictionary S-PECIALS.CMP

P-revious word N-ext word

M-isspelled list D-iscard

R-esume review L-ook up word

C-orrect word

V-iew context

Here's what they do:

At the bottom of the menu the word that you are currently making decisions about is shown.

Keying a U says that the word is spelled correctly and it should be added to the dictionary so that the next time it is used it will not be listed as incorrect.

S places that word into a different dictionary list. This may be for words that you want to save or review later and that, for some reason, you don't want in your normal dictionary. Actually, for the life of me, I really haven't figured out why someone would want to have correctly spelled words not checked during the spelling check operation. If you know, please let us know.

M says "Don't do anything with this word right now". It will be marked in the text with the marking character which you have chosen to use.

D says to ignore this word. It may be spelled correctly, or an abbreviation which will be only used this once so you don't want to clutter up a dictionary with it. The 'D' stands for 'discard'. It really means discard this word from the misspelled word file.

C says to correct the word. You can type in the correct spelling. If you used the 'L' command, you can key in a Control-A (or whatever a potential word was listed at, and that word will automatically take the place of the misspelled word. Read about the 'L' command for details.

P lets you look at the last word you had misspelled.

N shows you the next word in the misspelled list.

R gets you back to the current word after you have been using the P, N, or C commands to work on other words. For example, you might, after thinking for a few moments, go back to a word you marked as correct, and change its spelling, then press 'R' to get back to the current place.

L will search the dictionary and give you one or a few choices as to potential correct spellings for the word under question. Each of these potential correct spellings is labeled. If you wish to use one of them, you do not have to type them in. When you are in the 'C' command, a Control-? for that label will automatically place the correct version for you.

V will show you the word in question in the context that you used the word. If you did not select to create a context file during the initialization phase of the program, then you cannot use this option.

## Marking Words

When you're finished, TW then goes through and automatically corrects your text file. It places all of the correct words back into their proper place. Also, it tells you if any of those words are of a different character length than the word which it replaced and requests that you reformat your file if there is now a different character count. It also maintains the update dictionary, and it also marks the words if you had requested it to do so. When done, a prompt says "hit any key to return to WordStar". And there you are, back at the NO FILE MENU ready to do whatever is necessary.

If you use the SPELL program by itself, there is a number of options to allow you to customize the program for your own particular needs. Many of those options are covered by the defaults for the TW program. Also, if you have created a special dictionary full of the esoteric jargon you use in your trade, then you can direct the SPELL program to use that particular dictionary during its operation by adding the dictionary name to your instruction line then followed by the option switch. Here's an example:

## C-SPELL C:WORDPLUS

would do a spelling check program on a file found on Drive C called WORDPLUS.

# C-SPELL C:WORDPLUS JARDICT \$P

would do the same thing, but would also use your dictionary

named JARDICT as an additional dictionary to check for words.

SPELL automatically checks a file labeled UPDICT.CMP if it is found on the logged drive after it checks the main dictionary.

# Hyphen

The HYPHEN program is useful if you do lots of reforming of your text files to fit various column widths, or if you do much printing of narrow columns. This program will insert soft hyphens into your text. The default is that it hyphenates words longer than 13 letters. You can change the defaults. In addition, any soft hyphens you have already used will not be disturbed. Your editor says, now that they have approved the article, that the text should be set using your printer at 25 characters per line. Before HYPHEN, you would boot your word processor, set the new margins, and reform the output. Then, if you used WordStar, you would use the hyphen-help feature to help you decide if you wanted to hyphenate words so that there was less space between words on a formed line.

Now, you run HYPHEN. It inserts soft hyphens in all of the words that can take them. Then you can run WordStar and find that the hyphens are already there. It works.

The documentation says that it uses a technique described by Donald Knuth in a book TEXT and METAFONT, NEW DIRECTIONS in TYPESETTING. In addition, it maintains a separate dictionary for words which cannot be hyphenated using those rules. The Documentation contains a lengthy discussion of the problem. If you write, you should read that section.

## Lookup

LOOKUP does just that; it looks up words that may be misspelled and suggests correct spellings. The Documentation says that there are four most common ways to misspell words and elaborates on those ways. Again, an interesting tutorial.

## Speed

All in all, there are 699 unique words in this article. This number came from the TW program as it read the article to check for spelling. From the time I ran the program from WordStar, until the time I was ready to start making decisions about words not found in the dictionary, elapsed time was approximately 62 seconds.

After I checked the spelling, I ran the WORDFREQ program. It told me how many words there were in the article, that I had 699 unique words, and, sakes alive, I managed to use 361 words which appeared only once. How about that?

# Summary

This set of programs is a valuable addition to the writer's library. It is well documented and well constructed. I had no bombs or other mishaps when using it. It worked better and easier than any of the spelling check programs I had been using prior to using The Word Plus. The feature I liked best was that it automatically corrected the words, and that I did not have to go back and go through the file one word at a time to fix them.



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## **Dynamic Calendar**

by Alan Thomas
TasApple Newsletter, Tasmania, Australia

200

Feller once said, "If you want a short winter, sign a 90-day note!" Here's a calendar that lets you calculate how many days one date is from another, and the day of the week on which it falls (or fell). By pressing certain keys, you can jump rapidly forward or backward through the days, months, years or decades from January 1, 1701 to December 31, 2099. The display shows the date, the corresponding day of the week, and the number of days counted from the ENTRY date, either positive or negative.

Eleven of the keys control the program's execution. The size of each step can be one day, one month, one year, or one decade, forward or backward.

The four forward keys are:

D (day) M (month) Y (year) U (decade).

The four reverse keys are conveniently located to the left of the forward keys, with the decade-year keys clustered in speed/direction order:

S (day) N (month) T (year) R (decade).

The D and S keys are wraparound; that is, they are confined to the month in which you are currently operating. The left and right arrow keys, however, know no such limitation, and will move from one month to another.

Some modifications were made to the original program, the main one being the Americanization of the date structure. The original program used the day/month/year format common in much of the world; the lines that did that are still there, but have had 1000 added to them in this listing. They don't enter into the program, but there they are, if you need them.

The data entry line, 136, is not bulletproof, but demonstrates multiple input in one statement. The data input routine begins at Line 160. The various values of K in Lines 180 to 280 are the ASCII values for the keys being used; ESC is 27, D is 68, etc. Line 290 completes the loop, sending control back to Line 160.

The most depressing aspect of using the Dynamic Calendar occurs when you enter today's date, and step back to your date of birth. Can't be *that* many days . . . must be a bug . . . well, you've been warned.

```
10
    REM
        DYNAMIC CALENDAR
20
    REM
          BY ALAN THOMAS
30
    REM
          TAS APPLE CLUB
35
    REM TASMANIA, AUSTRALIA
36
    REM
       37
    REM
           MODIFIED BY
38
    REM
          P. C. WEIGLIN
39
    REM
          APPLE ORCHARD
40
    REM -
42
    REM
        DATE LIMITS ARE FROM
50
    REM 1/1/1701 TO 31/12/2099
60
    REM
        AND ARE WRAPAROUND.
70
    REM -----
80
    REM
       COMMAND KEYS USED ARE
    REM S,D,N,M,R,T,Y,U,->,<-,ESC
90
95
    REM -----
100 DY$ = "SUNMONTUEWEDTHUFRISAT"
110 M$ = "JANFEBMARAPRMAYJUNJULAUGSEPOCT
NOVDEC"
120 P = -16384:Q = -16368
122 V = 14
    TEXT: HOME: VTAB 2: PRINT "
  DYNAMIC CALENDAR": PRINT: PRINT
    PRINT "
                 S-DAY-D
                               N-MONTH-M
133
    PRINT : PRINT "
                         T-YEAR-Y
                                       R
-DECADE-U"
134 PRINT : PRINT "
                              <== DAY ==
>": POKE 34,9
136
    PRINT: PRINT: PRINT " ENTER DATE
 (MONTH, DAY, YEAR)": PRINT : PRINT "E.G.
 2,16,2001": PRINT : INPUT M,D,Y
    HOME: VTAB V: HTAB 6
140
141
     PRINT MID$ (M\$, 3 * M - 2, 3); "/";
     IF D < 10 THEN PRINT " ";
142
143
     PRINT D; "/"; Y; "
                             ENTRY"
146
     POKE 34,14:V = 17
     VTAB 22: PRINT "'ESC' ENDS...": POK
147
E 35,21
150
     GOSUB 570:Z = C: GOTO 350
160
        PEEK (P) < 128 GOTO 160
170
     POKE Q,0:K = PEEK(P)
180
     IF K = 68 THEN D = D + 1: GOTO 350
190
     IF K = 83 THEN D = D - 1: GOTO 350
```

IF K = 77 THEN M = M + 1: GOTO 350

```
IF K = 78 THEN M = M - 1: GOTO 350
210
     IF K = 89 THEN Y = Y + 1: GOTO 350
220
230
     IF K = 84 THEN Y = Y - 1: GOTO 350
240
     IF K = 85 THEN Y = Y + 10: GOTO 350
     IF K = 82 THEN Y = Y - 10: GOTO 350
250
     IF K = 21 THEN D = D + 1: GOTO 300
260
270
     IF K = 8 THEN D = D - 1: GOTO 330
280
     IF K = 27 THEN END
290
     POKE 0.0: GOTO 160
300
    IF D > E AND M = 12 THEN Y = Y + 1
310
     IF D > E THEN D = 1:M = M + 1
320
     GOTO 350
     IF D < 1 AND M = 1 THEN D = E:M = 1
330
2:Y = Y - 1: GOTO 350
     IF D < 1 THEN M = M - 1: GOSUB 520:
340
D = E
350
     POKE Q.O: GOSUB 520
     IF D < 1 THEN D = E
360
370
     IF D > E THEN D = 1
380
     IF M < 1 THEN M = 12
390
     IF M > 12 THEN M = 1
400
     IF Y < 1701 THEN Y = 2099
     IF Y > 2099 THEN Y = 1701
410
420
     HOME: VTAB V: HTAB 6
440
     PRINT MID$ (M\$, 3 * M - 2, 3); "/";
     IF D < 10 THEN PRINT " ":
441
     PRINT D;"/";Y
443
     GOSUB 570:N = C - Z
460
```

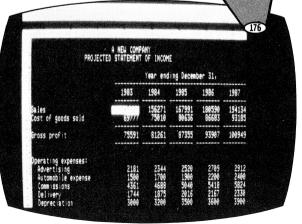
```
470 IF (M < 3 \text{ AND } Y = 1900) \text{ OR } Y < 1900
THEN C = C + 1:N = N + 1
    IF (M < 3 \text{ AND } Y = 1800) \text{ OR } Y < 1800
 THEN C = C + 1:N = N + 1
490
    VTAB V: HTAB 27: PRINT N;: CALL -
868
500 C = C - 7 * INT (C / 7) + 1
510 VTAB V: HTAB 20: PRINT MID$ (DY$.3
 * C - 2,3): GOTO 160
520 E = 31: IF M = 2 THEN E = 28
530 IF M = 4 OR M = 6 OR M = 9 OR M = 1
1 \text{ THEN E} = 30
540
    IF M = 2 AND Y / 4 = INT <math>(Y / 4) T
HEN E = 29
550 IF M = 2 AND (Y = 1800 \text{ OR } Y = 1900)
 THEN E = 28
560 RETURN
570 A = M + 13 - 12 * (M > 2)
580 B = Y - 1 + (M > 2)
590 C = INT (365.25 * B) + INT (30.6 *
 A) + D - 621049: RETURN
1100 END
      PRINT: PRINT: PRINT "ENTER DATE
1136
(DAY, MONTH, YEAR)": PRINT : PRINT "E.G. 2
5,12,2001": PRINT : INPUT D,M,Y
1142 PRINT D;"/"; MID$ (M$,3 * M - 2,3)
                  ENTRY"
1440 PRINT D;"/"; MID$ (M\$, 3 * M - 2, 3)
```

# Q: WHAT HAS 80 COLUMNS, 176K AND WORKS WITH VISICALC?

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# Part 2: The Real Challenge; Putting it all Together by William Harvey

Does a funny-looking creature with two flickering eyes, a blunt nose, and two triangular appendages sound familiar? It doesn't? Well, you must not have typed in the example from the last issue.\*

Oh, it does? Fantastic! You are well on your way. In this issue you will learn how to design your own Hi-Res shapes, and then how to draw them. Then, in Part III you'll see how to move your shapes smoothly all over the screen, assuming that curiosity doesn't lead to your discovering it even before then!

Before you can put some picture on the screen, let alone move it, the computer must know what that picture is. Your first objective is thus to make some shapes, or pictures, and store them somewhere in memory where the computer can later find them: only then can the computer go about drawing things. Unfortunately, making these shapes is not a simple matter. And the complexity stems from the methods of the draw routines themselves. And so, at the risk of driving the cart before the horse, you must first examine how the routines draw the shapes, and then learn just how to make those shapes which will be drawn.

Think of the fastest way possible that a computer could draw a picture on the screen. Following a series of directions or vectors? Drawing a bunch of lines? Plotting each dot individually by coordinates? No, none of these is it. It fact, they rate from super-slow to slower yet to slowest possible. The fastest way to draw a picture is to transfer it from one place in memory to another.

The largest unit of memory possible for transferring a picture is the byte. Your picture is likely to be larger than one byte, probably both in width and height. So you will be transferring many bytes.

The quickest way to transfer many bytes is in the form of a matrix or a block of bytes inside of which your picture is drawn. Refer to Figure 1. Although the picture to be transferred is only eighteen dots wide, it is in a matrix of twenty-one dots because you are transferring by bytes. Two bytes across is not enough and three is just sufficient. Vertically, the shape is sixteen dots high and so is the matrix.

When transferring a matrix onto the Hi-Res screen, reading the shape byte by byte from somewhere in memory is not very difficult. But the second part, putting in the appropriate memory locations on the Hi-Res screen, is very difficult. Think how slow it would be to calculate the memory address of each

<sup>\*</sup> Unless a whirling disk drive, cacophonic noises from the Apple, and a screen full of gibberish sounds familiar: then you must have made a small, yet deadly 'typo' when entering the example.

Y coordinate of a shape (recall that memory is in a peculiar pattern on the Hi-Res screen). Instead, there is a much easier way. Try using a look-up table.

A look-up table is a series of addresses located in sequential order in memory. A Hi-Res table contains addresses of the first byte in each vertical position. There are 192 of them. By looking up the nth element in the series you can find the address of the nth vertical position, and quickly. A draw routine uses the look-up table method of transferring a shape from memory to the screen. It works in this fashion (also see Figure

- 1) First, it calculates the address of the Y coordinate of the shape.
- 2) Then, it adds to it the horizontal coordinate of the shape. Memory on the Hi-Res screen, remember, increments by one horizontally. It has now calculated the address of the starting position of the shape.
- 3) Next, it transfers, one byte at a time, that whole row of bytes. 4) That task completed, it goes back to step one, calculating the address of the second row down in the shape.
- 5) It continues until it has transferred all rows of the shape.

You may already see a tremendous problem, The horizontal coordinates referred to above are in bytes, not dots. See it yet? How about another hint: There are seven dots to a byte. Ah, there it is: The shape would have to skip seven dots each time is was to move one step to the right or left. Surely, there must be a better way. Animation this "jerky" just isn't acceptable.

The only way to achieve real smooth animation is to make seven shifts of each shape. Each shift is the same shape as the others except that it is drawn one more dot to the left. Look again at the example shape in its block. Now look at the examples of the seven shifts of that shape. Notice that one more byte had to be added to the matrix X-wise in order to have the extra room needed for the fifth, sixth, and seventh shifts.

Now the computer can make a shape move anywhere on the screen. To move vertically, it simply uses different vertical coordinates. To move horizontally, it draws the different shifts of the shape in sequential order, and when it reaches the seventh, it increments the horizontal position in bytes by 1 as illustrated in the Figure.

There are several different draw routines provided in this article. Some draw different size shapes. Others transfer the shapes onto the screens in different ways. And some are just erasing routines. Which routine to use when is the topic of Part 3, "Technique of Animation". For experimenting purposes, just use any size of the direct transfer routines.

To enter a machine language routine, type, CALL - 151 «RETURN». Then type the object code listing of the chosen routine, not the disassembled listing. To do so, type the four digit memory address followed by a colon. Then type the row of two digit numbers following. For example, the first line of what you would type might be:

#### 6000:0D 0A 0C 06 18 0F 05 1A «RETURN»

By typing that line, you have done the following:

Memory Location \$6000 now contains the value \$0D; Memory Location \$6001 now contains the value \$0A; Memory Location \$6002 now contains the value \$0C; Memory Location \$6003 now contains the value \$06; Memory Location \$6004 now contains the value \$18; Memory Location \$6005 now contains the value \$0F; Memory Location \$6006 now contains the value \$05; Memory Location \$6007 now contains the value \$1A.

Type 3D0G «RETURN» to return to BASIC. You also have to type in the Hi-Res look-up table. Do this in the same fashion. You can have as many routines in memory as you want, but you only need to enter one look-up table. To save all the shapes you have in memory and the look-up table type. BSAVE (file name), A\$6000, L\$400 «RETURN».

The disassembled listings of the routines are included so that you can follow a program and make changes in the code to customize the routines for your drawing needs. You could also use an assembler to put the routines in memory. Once the draw routines are in memory, make sure that you do not erase them. The routines are right above the Hi-Res pages. Most BASIC programs reside below the pages, but shapes will most likely be above the Hi-Res pages and might conflict with the draw routines. Be careful when you get to the shape-making stage that you do not put shapes in memory where you will have draw routines.

#### How the Draw Routines Work

Look at the disassembled program listing in machine language and the more detailed flow chart to the right. If you do not understand machine language, then look primarily at the flow chart. The numbers on the flow chart refer to the pictures of Figure 1.

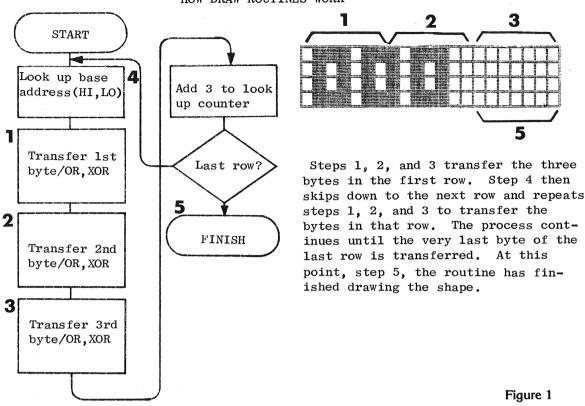
Since there are many sizes of shapes, a shape draw routine must be able to draw different sizes of squares. However, making a draw routine that can draw shapes of any dimension requires that the draw routine be much more complicated and consequently much slower.

Vertically, it really doesn't make much difference in speed or complexity whether the draw routine is versatile or is preset to a certain length. The difference comes in the horizontal component. Therefore, it is most convenient to make up several different draw routines, one which is two bytes wide, another which is three, another which is four and still one more which is five bytes wide.

Most shapes will fit horizontally into at least one of these squares. You may ask, "Why not a draw routine for one byte wide?" Well, remember that you always have to add an extra byte horizontally to a square, for the shifts. Thus, a two byte square really only holds a one byte shape.

The draw routine starts by storing the Y-coordinate of the last row of bytes into a counter. It does this by loading the starting Ycoordinate and adding to it the vertical length of the shape as previously stored in some other variable. Then it finds the address of the first coordinate. Addresses require two bytes, a high byte and a low byte. Somewhere you must have a look-up table for both the high and low bytes of vertical coordinates. The Draw routine finds in the look-up table the low byte of the initial address of the Y-coordinate. Then it adds the horizontal coordinate to it. Next, it looks up the high byte of the Ycoordinate address.

This horizontal coordinate is measured in bytes, not dots. It is really only one seventh the actual horizontal coordinate of the shape because there are seven dots to a byte. It is thus a number from zero to thirty-nine. Even those of you not familiar with machine language know that a byte can hold only values up to 255. Luckily, there is no danger of the sum of the low byte from the look-up table and the horizontal coordinate being greater than 255 because the maximum low byte is 208 which when added to 39 is still lower than 255.



After the draw routine has calculated the starting address, it transfers the whole row of bytes in the square. This is where the draw routines become specialized. The routine could transfer the row in a loop sequence, but it is much quicker and does not take up too much more memory to write the code for transferring each byte individually.

A tricky factor comes in here, one which is discussed in much more detail in Part 3, "The Technique of Animation". That is, do you really want to transfer the shape onto the screen or do you want to OR it onto the screen or do you want to XOR it onto the screen? The difference is that if you just transfer the shape onto the screen, it will erase any background over which the square was drawn, not just the shape. On the other hand, if you OR a shape onto the screen, all background will be preserved. This is like superimposing the shape onto the background. If your shape has holes in it, the background will show through. The XOR is different yet. XOR superimposes the shape onto the screen but wherever the shape actually overlaps the background, there will be black, instead of white as produced with OR.

Whatever technique you choose, the draw routine transfers the square onto the screen somehow. But how does it read the bytes of the shape from memory? It has two counters which are the high and low bytes of the address of the shape. As it transfers bytes it has to increment this address so that it reads the bytes sequentially. The only time it actually has to increment the high byte is when the low byte of the address becomes greater than 255. You can make the code a little faster by making sure that none of your shapes are in memory such that the address of the starting byte contains a different high byte than the address on the ending byte. That way, the

counter in the draw-routine will never go over 255, which obviates including extra code for incrementing the high byte of the shape address.

This may seem to be quite a trivial matter. Indeed, you probably thought that when you switched to these fancy machine language routines, all of your speed problems were gone forever. Alas, ils resteront toujours avec votre Pomme!

The routines listed below do not have this omission in the code. You can therefore put your shapes anywhere in memory that you want. If speed is a problem, though, make the changes as shown in the captions of the listings.

Moving along, the draw routine goes back to step one and finds the address of the next Y coordinate and transfers that row of bytes. Before it does so, though, it checks to see if the current Y coordinate is the same as that counter containing the ending Y coordinate that it set in the beginning of the program. If it is the same, then the job is through; the shape is drawn; and you are ready to move onto the next section, detailing how to assemble your shapes into memory.

#### The Shape Editor

To put the draw routine concept in a nutshell, a draw routine simply transfers a block of data (your shape) from one place in memory to another, the latter being a Hi-Res screen. By specifying different coordinates, you can determine where on the screen the shape is drawn. By telling the routine to transfer from a certain memory range, you can make it draw the picture located in that range. Thus, you can have many different shapes in different places in memory, and all you have to do to draw one is tell the routine where it is!

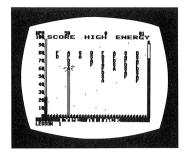
After you make a shape, your first decision is where to put it. You ought to put it in free memory such as above the Hi-Res

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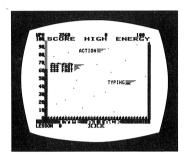
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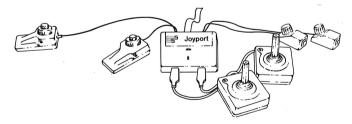
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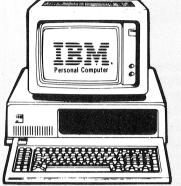
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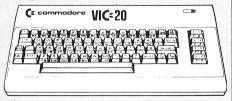
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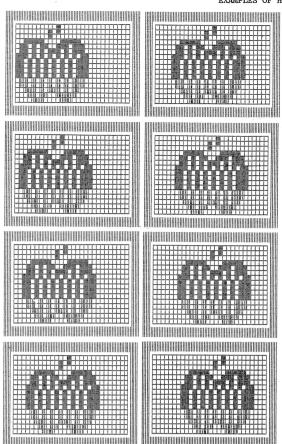
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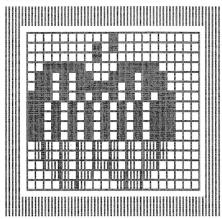
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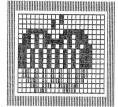
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ABOVE AND RIGHT: A 3 byte by 16 byte shape of an apple, drawn on Graphics Block Editor. assembled, this shape becomes a 4X16 shape because of the shifts. LEFT: Pictures of the apple shape moving smoothly across the screen. The secret to this smooth animation is having seven shifts of the shape, i.e., pictures 1 through 7 actually being separate shapes, differing only by how many dots the apple is from the left edge of the shape. By drawing these seven shifts in



sequential order you can move the apple smoothly over a course of seven dots. Upon reaching the eighth position, you can start all over with the first shift, but one byte to the right; the eighth picture of the apple is the same as the first but seven dots to the right.

pages (\$6000-\$9000), but just for kicks you could try page zero DOS, or maybe even the keyboard buffer (No, don't. Keep it in free space.)

But first of all, how do you make a shape? You could try to make the picture-to-number conversion by yourself, but that might just turn out to be a momentous task.

Each shape, remember, is inscribed in a square that is a certain number of bytes wide and a certain number of bytes tall. You know the correspondence between numbers and dots; so you actually could take out your calculator and turn a picture on graph paper into numbers, and then put those numbers sequentially into memory.

Before you go about doing this, think of what you are getting yourself into. For each byte you would have to add up the number values of the seven dots and then add the Most Signigicant Bit (MSB) for color; that is seven calculations per byte. Then figure that an average shape is about four bytes wide by fifteen tall. That's four times fifteen times seven . . . 420! O.K. Well, do-able, anyway. But remember you have to make seven shifts for each shape. That's 2,940 calculations for one shape! If you are willing to make this number of calculations, you are showing severe symptoms of 'Computericum Freakestus'. Medical attention is advised.

Here is a much simpler way of doing it, or rather, having the computer do it. Type in the program listing at the end of the article. This is a shape editor. It allows you to enter and edit shapes, and then, it assembles them into memory. It is written in Applesoft and consequently is pretty slow. If you have access to a compiler such as TASC or Expediter, do compile the shape editor. At first, it may seem extremely time consuming to type in a program this long. Any time that you feel this way, quickly recall the other alternative: 2,940.

There are three listings of the shape editor: a disassembled listing, a memory dump, and an Applesoft listing. You do not need to type in all three of them . . . Only two. The shape editor is half in Applesoft and half in machine language. There are several ways of typing in the machine language portion. One is to use an assembler like LISA. If you decide to go this route, type in the fully disassembled version.

On the other hand, if you just want to get it in memory and are not too interested in how it works, type in the numbers from the memory dump. Note: if you typed in the demonstration from the first article in this series, you already have half of the job done. Just BLOAD the demo file, and enter only the corrections from the Monitor.) The assembled version allows you to figure out how the program works and change it if you want. If you have no desire to do so or if you do not understand machine language in the first place, type in the numbers from the dump, instead. This is the exact procedure for typing in the shape editor program, machine language and all:

- 1) Turn on the computer and get ready to type in the Applesoft BASIC part. If you have the Program Line Editor, use it.
- 2) Type in the Applesoft part exactly as it appears in the listing. This may take more than one session.
- 3a) (memory dump) Type, CALD 151 «RETURN».
- 3b) (assembler) Save the Applesoft part of the program.
- 4a) (memory dump) Look at all the columns of numbers in the memory dump. Type in the first number. It has four digits and is an address. (Do not press RETURN.). Next, type a colon followed by the eight two digit numbers in the row opposite the address. For example, the first thing to type in is, 2000:00 18 06 07 83 18 06 77 «RETURN». Continue until you have typed in all the rows.
- 4b) (assembler) Type in the disassembled listing. Assemble it: save it; load the Applesoft part; load the object code; and type, CALL - 151 «RETURN».

- 5) Type in the two rows of data for the addresses 2200 and 2208
- 6) Type, 2010G «RETURN». It should beep. If it "hangs" instead, then you must have typed in a wrong number or assembled the machine language part incorrectly. Go back to Step 4.
- 7) Type, AF:00 «RETURN» and, B0:28 «RETURN». This tells the computer that the Applesoft portion of the program is much longer than it really is. Consequently, when you save the Applesoft part, you will be saving the machine language part as
- 8) Type 3DOG «RETURN» which should bring you back to Applesoft. Then type SAVE GRAPHICS BLOCK EDITOR «RETURN»

That's it! You are done! No more 2,940: From here on out, the computer does all the hard work. There is only one thing left: how to use it.

#### How to Use the Shape Editor

You have typed in the entire shape editor. You have tested it, debugged it, cleaned it up, and now you are finally ready to use it. Here are the program guidelines:

OBJECT- To do all the hard work. More specifically, to turn pictures (shapes) into the numbers which the draw routines can understand.

INPUT- A picture.

OUTPUT- The numbers.

PLAYERS- One Apple computer and one dedicated program-

So, the shape editor takes a picture and converts it to numbers. First things first - you have to draw the picture. Run the shape editor (RUN GRAPHICS BLOCK EDITOR «RETURN»). It tells you that it is ready and prompts you with a little flashing cursor. To draw a picture, you would have to enter the command 'E' for edit. But before you can draw a picture, you have to specify just how tall and how wide you want the square to be. You do this with the command 'I' for initialize. It first asks you what starting address you want for your shapes when they are assembled. You can enter any number greater than 12287. You can later load a shape into a different memory location, but when using this Editor, the location has to be greater than 12287 so that the shapes do not overwrite the actual program.

Enter 12288 and press RETURN. It then asks you what width you want the square to be. Respond '1', '2', '3', or '4'. You do not need to add another byte for the shifts. After that, tell the computer what height you want the square to be.

Now you're ready to draw your picture. Type 'E' (press RETURN after each command). Then watch the computer draw a grid on the screen. See, it is doing hard work already! Notice that one square in the grid does not have edges. This is the cursor. You can move it around using the arrows and the A and F keys, the same as in Gorgon. To plot a square, press the space bar. To erase a square, press the space bar. Draw your picture by plotting squares. When you are through, press RETURN.

Now to watch the computer do the 2,940 Hustle. Type 'A' for Assemble. It asks you for the shape number. You can assemble several different shapes sequentially into memory. And the computer keeps track of the addresses for you by shape number. Press RETURN and the computer will add it as the next shape. It then asks you for the address of the first shift. Here you can either press 'N' for 'next memory' (it will follow the preceding shift or shape), or RETURN for skip it, or 'Q' for quit, or a decimal number for the actual address. The computer will beep for a second, indicating that it is assembling your shape and then it will ask you for the address of the next shift, and so on for all seven shifts.

You have to make sure that your shapes don't conflict in memory usage with your draw routines. To avoid this problem. you can either assemble your shapes starting at 13312 (\$6400) or BLOAD the shapes into a different range of memory after assembling them. Type 'P' to print the addresses of all the shapes that you have assembled. If you want to turn on the printer or execute any other DOS command, simply press Ctrl-**D** and enter the command. Of course, you can't use commas in your commands, so if you have to save or load something, use the 'S' or 'L' commands. With these commands, the computer asks you the memory locations for saving or loading files. You can enter these in decimal or hexadecimal, but remember to precede a hexadecimal number with a dollar sign.

Two other commands are 'T' and 'G' for text and graphics respectively.

The name "shape editor" implies that there is a way of editing already assembled shapes as well as making new ones. And there is. The command is 'D' for Disassemble. The computer asks what is the address of the shape. Reply with an actual address, a 'Q', or a 'T' followed by a number. The 'T' tells it to take the address from the table - the same table that you print out with the command 'P'. The number after the 'T' tells it which number shape you want it to disassemble. The coputer which number shape you want it to disassemble. The computer also asks for the shift number. Respond with '1' through '7'.

If you previously told the computer to fetch the address from the table, this tells it the address of exactly which shift. This also tells it how to disassemble the shape. If you try to disassemble the seventh shift of a shape and tell the computer that it is only the fifth, it will correctly disassemble the shape, but two spaces off center. If you really want to get fancy, this is a way of moving your shape around on the square.

The last command is 'Q' for quit. This just stops the program; it does not save your shapes or catalog the disk or even delete the program - it just stops. This way you can do any file maintenance such as renaming or saving a file and then rerunning the program.

This program has limited error handling. If you make an error it does not just stop and say, '\*\*\*SYNTAX ERROR,' returning you to BASIC. Instead, it tells you that you made an error and remains in the program. Also, if you ever issue a command that you really do not want, you can always press 'Q' as a response to a question, or RETURN to make it skip over that part of the command. For instance, if you want to redefine the width of a shape but don't want to start at a new address, just press RETURN when it asks you to enter a new address.

With the aid of this program, you will be able to make shapes quickly and easily. You also know how the draw routines work, so you are just about at the point where you can begin to animate little creatures of your own. Not quite yet? Well, that's expected, because there are a few more things you must know in order to set variables and so on. Those of you familiar with Assembly language might just figure them out before the arrival of the next APPLE ORCHARD, which will contain Part 3, "Techniques of Animation". But otherwise, amuse yourself with making shapes until that next issue arrives, and then you can make them dance all over the screen.

```
70 STA TEMPHI ;> $2400+;35*ROW-SHIFT
71 LDA MYTE
73 LDA MYTE
74 STA MUL1
75 LSA MUL2
75 LSA MUL2
76 C.C.
77 LDA DIVLO
78 ADC TEMPLO
79 STA TEMPLO
79 STA TEMPLO
80 LDA DIVLI
80 LDA DIVLI
81 ADC TEMPHI ;>$$2400+;35*ROW-SHIFT+BYTE*$7
83 :CALCULATE MSB ADDRESS (COLOR BIT)
                                                                                                                                                                                                                                                                                                   A ZERO
                                                                                                                                                                                                                                                                                                                                ROLE SEVEN TIMES FOR ONE BYTE INCREMENT TARGET INDEX
                                                                                                                                                                                                                                                                                                    S.
                                                                                                                                                                                                                                                ASS7 NOP P#3000,X ;STORING WHAT WILL BE MSB ;PROGRAM WILL CHANGE "#3000" TO CORRECT ADDRESS
                                                                                                                                                                                                                                                                                                   ROLING ON EITHER A ONE
                                                                                                                                                                                        1>405*ROW+BYTE+#276B
                                                                                                                                                                                                                                                                                                        *DEPENDING ON WHETHER DOT ON OR OFF
PROGRAM WILL CHANGE "$3000" TO CORRECT ADDRESS
                                                                                                                                                10#05*ROM+BYTE
                                                                                                        W08*00*
                                                                                                                                                                                                                                                                      NOP M$CO30
LDA (TEMPLO),Y
                                                                                                                                                                                                                                          LDA (DIVLO),Y
NOP P$3000,X
                                                                                                                                                                                                                                                                                       BEG ASS6
SEC
NOP V$3000,X
                                                                                STA DIVHI
RTS
??? N#$00
LDY #$00
                                                                                                                                                                                                                                                                                                                                                                                                     KCLEAR
                                                                                                                                                                                                                         STY BYTE
NOP KCALC
                                                                                                                                                                                                                                                                                                                           CPY #$FF
BNE ASSI.
INX BYTE
CDA BYTE
CDA BYTE
CDA BYTE
SNE ASSZ
INC ROW
INC ROW
CMP NRYTE
REPER ASSZ
INC ROW
MRYTE
REPER ASSZ
UMP ASSZ
UMP ASSZ
                                                                                                                                                                                                                   NOP 0#$01
                                                                                                                                                                                                                                                                 LDY #$06
                                                                                                                                                                                                              STY ROW
                                                                                                                                                                                                                                                                                                                                                                                               NON P
P P P
                                                                                                                                                                                                                                                                                                                     DEY
                                                                                                                                                                                                                                                                                                                                                                                                ASS64
DISASS
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                                                                                                                                                                                                                                                                       ASS1
                                                                                                                                                                                                                                                                                                   A886
                                                                                                                                                                                                                                                            ır
  NUMBER OF BYTES ACROSS +1 MULTIPLICAND
                                                                                                                                    ;ADD EQU ASS641,ASS6+2
;ADD EQU ASS741,ASS7+2
;THE ABOVE OBVIATES USING POST-INDEXED INDERECT
                                                                                                  #WHICH BYTE (X*7)+7
                                                                                       #WHICH SHIFT (0-6)
                                                                                                                                                                                                                                                                                                                                                                         #12 #2400+!35*ROW
                                                                LSB OF PRODUCT
                                                                                                                                                                                                                                                                                                                                                   LOS*ROM
                                                                                                                                                                                                                    SIMPLE MULTIPLY ROUTINE
             GRAPHICS BLOCK EDITOR COPYRIGHT (C) WILLIAM
                                                                                                                                                                 TAX
NOP P$2400,X
STA $2500,X
STA $2600,X
STA $2700,X
LDY $C030
                                                          #FF
#FF
#FB
#FC
#FC
#2000
                                                                                                             NOP Y $2006
NOP Y $2008
NOP Y $2009
NOP Y $2007
   1 ;WILLIAM COMPUTERS
2 ;GRAPHICS TO TO
                                                                                                   $2002
                                                                                                         $2002
                                                                                                                                                                                                                                                                                                                                                                                  LDA DIVLO
SBC SHIFT
STA TEMPLO
                                                                                                                                                                                                   INX
BNE LOOP1
RTS
                                                                                                                                                                                                                                                                                               NOP
BNE MT2
STA DIVLO
LDX XTEMP
RTS
                                                                                                                                                                                                                                                                                                                                                        CLC
LDA DIVHI
ADC #$24
                                          0RG $2010
0BJ $2010
CNTRLO NOP \ $FE
                                                                                                                                                      CLEAR VARIABLES
                                                                                                                                                            NOP M##00
                                                                                                                                                                                                                          NOP M#$00
                                                                                                                                                                                                                                                      DIVHI
                                                                                                                                                                                                                                                                        CLC
ADC MUL1
BCC MT3
                                                                                                                                                                                                                                 STX XTEMP
                                                                                                                                                                                                                                       STA DIVHI
                                                                                                                                                                                                                                                             ASL MULZ
BCC MT3
                                                                                                                                                                                                                                                                                          INC DIVHI
                                                                                                                                                                                                                                                                                                                                                                         STA DIVHI
                                                                                                                                                                                                                                                                                                                                                                                                      DIVHI
                                                                                                                                                                                                                                            LDX #$08
                                                                                                                                                                                                                                                                                                                                       #135
MUL2
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                                                                                                                                                                                                                                                                                                                           NOP MROW
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# Introducing DataFax...the easy way to tame your Data Monster.

If you deal with information, you're probably dealing with a Data Monster.

He's that mass of notes. Scribbled messages. Phone numbers. And all the thousandand-one other important pieces of information you have floating around your life.

But with **DataFax** from Link Systems, you can keep your Data Monster under control plus have a lot more power over your information than you ever thought possible.

Unlike most "data manager" software programs made for your Apple, DataFax doesn't care what your data looks like. Or how long it is, how many items it has or what you want to do with it.

The power we've programmed into DataFax makes it as simple and natural to use as a pencil and paper. You can fill up a screen with anything you want—even information already stored on disk. Then cross-reference it as many different ways as you'd like—by a date, a species, a customer's name, whatever.

So when you need that information, DataFax will retrieve it in a way that's meaningful to you. The powerful keyword function allows you to get information out as quickly and easily as you entered it. And DataFax is the only software of its kind to let you expand from floppy to hard disks, so it will never be obsolete.

oataFax ™ If getting so tamed me! much power for so little effort seems too good to be true, send us the coupon and we'll send you all the details. Or see vour Apple computer dealer and prove it to yourself—before your data situation gets any hairier.

ZYSTEMS

Because whether you've got a monster of a data problem or just a small one—DataFax can tame it.

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	Apple II Apple III
	□ Dealer inquiry.
	☐ Send me (quantity)
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	each. CA residents add 6% tax.
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	Foreign, please add an additional
	\$10 shipping and handling
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À	Credit Card #
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	Mail to: Link Systems
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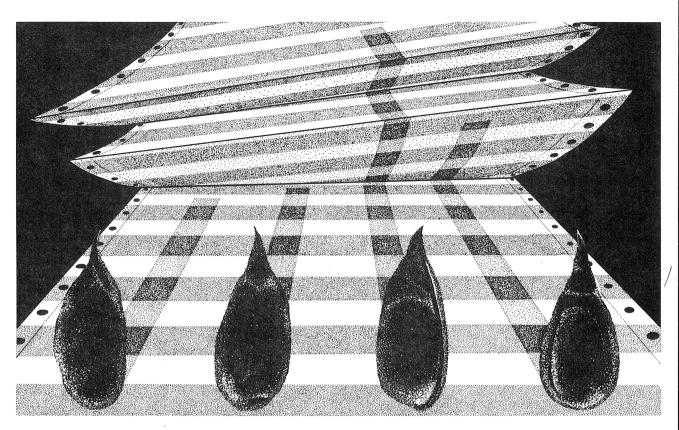
Simply powerful software that links it all together

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YAXLO		<u>.</u>	72 HEX DOUBLOUGHOUS 73 15 IRECT TRANSFER DRAW ROUTINE (TWO BYTE) 74 DRAWZB NOP GXTEMP 75 STY YTEMP 76 LDA YCO 77 TAX CLC 79 ADC HIGHT 80 STA CATRIL 80 STA C	028 NOP		10.2 GFA CATAINTAL 10.3 BNE D2B 10.4 LDA XTEMP 10.5 LDY YTEMP 10.6 RTS 10.7 ; DIRECT TRANSFER DRAW ROUTINE (THREE BYTE 10.8 DRAW; BNOP GXTEMP 11.0 LDA YCO 11.1 TAX 11.2 CLC 11.3 ADC HEIGHT
209 CMP NBVTE 210 BNE DIS2 211 INC ROW 212 CMP ROW 213 CMP NROW 214 BNE DIS1 215 RTS	LOAD R	FILE NOT FOUND FILE NOT FOUND :LIST 1; DRAW ROUTINES	08.0 #88 SHPLO 00P / 88 SHPHI 00P / 176GLO 00P / 176GLO 00P / 176GLO 00P / 176GHI 0	XCO YCO XTEMP YTEMP HEIGHT COLUR YAXHI		HEX 2024282030343830 HEX 21282030343830 HEX 2128292031353930 35 HEX 2128292031353930 HEX 22262A2E3236348 37 HEX 22262A2E3236348 99 HEX 22262A2E33373837 40 HEX 2327282738373837 HEX 2024282030343830 HEX 2024282030343830 HEX 2024282030343830 HEX 2125292031353930 45 HEX 2125292031353930 46 HEX 2125292031353930
; BYTE TO BE CONVERTED TO DOTS ;SHIFT LSB INTO CARRY ;ONLY TURN ON DOT IF CARRY ON	FIRST DOT.	; SECOND DOT ON	FOURTH DOT ON	FIFTH DOT ON	SIXTH DOT ON	; TURN ON COLOR BIT ; INCREMENT SOURCE ADDRESS
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STA CNTR1	NOP O#\$00 LDA YAXLO,X	ADC XCO STA TRGLO			STA (TRGLO),Y	INY LDA (SHPLO),Y		INY LDA (SHPLO),Y		LDA SHPLO			ADC #\$00		CPX CNTR1	LDA XTEMP	LDY YTEMP	KIS TRANSFER	NOP QXTEM	STY YTEMP	TAX TO		ADC HEIGHT STA CNTR1	NOP 0##00	LDA YAXLO,X		STA TRGLO	ADC PAGE		LDA (SAFLO),1 STA (TRGLO),7		LDA (SHPLO),Y STA (TRGLO),Y		LDA (SHPLO),Y		LDA (SHPLO),Y	STA (TRGL)	LDA SHPLO		STA SHPLO		STA SHPHI	CPX CNTR1		LDY YTEMP	RTS
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#### SHOPPING LIST

- personal database management program for construction of shopping lists and handling of similar information
- speeds shopping list preparation, minimizes forgotten items
- accommodates up to 500 user-definable items per file, multiple files can be used
- supplied with a database of over 200 common grocery-type items already on disk
- print shopping lists sorted by category for convenient use

#### CALENDAR

- personal database management program for date-related information
- remember appointments and important dates, log maintenance records, etc.
- automatic generation of on-screen or printed calanders for any month in this century

#### **MONEY MANAGER**

- professional quality home accounting system
- handles checkbook, cash, charge card, savings account and virtually any other type of transaction
- automatic and coded input features minimize keystrokes and speeds data entry
- PERSONAL UNAR SEARES interactive budget creation and automatic budget tracking - budget status can be checked at any time, even in the middle of a month
- complete series of on-screen and printed reports
- lightning fast checkbook reconciliation
- check printing
- multiple file audit capabilities

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- includes Personal Money Manager, Personal Calendar, and Personal Shopping List all on one diskette
  - Professional quality
     Unlocked diskettes
     Listable code
- Requires Apple II with Applesoft in ROM, 48K RAM, DOS 3.3

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#### **OMNIFILE**

- full-featured file manager and report generator for home, business, school, or scientific applications
- user-definable file structures
- powerful search and edit; including global change and delete
- built-in statistical analysis
- flexible tabular report and mailing label capabilities, complete with search/sort capabilities on any field

#### **OMNITREND**

- powerful multiple regression trend analysis tool for business or technical data
- sophisticated least squares fitting algorithm faster and more accurate than usual techniques
- includes descriptive statistics and bivariate analysis
- built-in data management and file editing
- extensive built-in hi-res graphics to aid in data analysis
- Professional quality
   Unlocked diskettes
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#### **OMNIGRAPH**

- · versatile data display tool for business or technical data
- line graphs, scatter graphs, combined line and scatter graphs, bar charts (including additive bar charts), combined line and bar charts, and pie charts
- defaults allow automatic plots, but all plot parameters can be charged from menus to allow full control of plot appearance
- user-definable mathematical transformations on data
- powerful plot overlay capabilities
- unlimited number of movable graph labels

#### **OMNIPACK**

 a convenient package containing the file, trend, and graph programs. (Data files are fully interchangeable)

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OMNITREND	\$59.95	\$74.95
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OMNITREND OMNIGRAPH OMNIPACK	\$59.95 \$49.95 \$129.95	\$74.95 \$64.95 \$169.95

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#### OMNICOMP powerful data manipulation and numerical analysis system

- performs polynomial curve fitting, numerical interpolation, numerical integration, numerical differentiation and statistical calculations using entire data file or selected subsets
- extensive built-in hi-res graphics
- mathematical data transformations, plus averaging, smoothing, and lag/lead
- data files interchangeable with OMNIPACK programs

		7	 -
- 1	•	•	
	_	4	 1

1 REM GRAPHICS BLOCK EDITOR
By William Harvey 182

Printed in SECRETS The Apple Orchard

- 2 HIMEM: 12287
- 5 ONERR GOTO 69
- 10 SCALE= 1: ROT= 0
- 15 X = 1:Y = 1:NS = 1:CX = 7:ADD = 12288
- 17 HGR2 : TEXT
- 20 POKE 232,0: POKE 233,34
- 30 POKE 16297,0: POKE 1630
- 40 XMAX = 5:YMAX = 25
- 50 DIM PADD(70)
- 60 HOME: INVERSE: VTAB 1: PRINT
  "GRAPHICS BLOCK EDITOR COPYR
  IGHT (C) 1982": NORMAL: POKE
  34,1
- 68 GOTO 70
- 69 PRINT CHR\$ (7); "\*\*\*ERROR"
- 70 PRINT : PRINT "READY"
- 80 INPUT ">";A\$:A\$ = A\$ + " ":B\$
- 90 FOR I = 1 TO LEN (A\$): IF MID\$
  (A\$,I,1) < > " " THEN B\$ =
  MID\$ (A\$,I,1):I = LEN (A\$)
- 100 NEXT
- 110 IF B\$ = "I" THEN GOSUB 1000
- 120 IF B\$ = "E" THEN GOSUB 1200
- 130 IF B\$ = "T" THEN POKE 16 303,0: POKE - 16300,0
- 140 IF B\$ = "G" THEN POKE 16 304,0: POKE - 16299,0
- 150 IF B\$ = CHR\$ (4) THEN PRINT
  A\$
- 160 IF B\$ = "P" THEN GOSUB 1800
- 170 IF B\$ = "S" THEN GOSUB 1900
- 180 IF B\$ = "A" THEN GOSUB 1600
- 190 IF B\$ = "Q" THEN TEXT : HOME : END
- 200 IF B\$ = "L" THEN GOSUB 2200
- 210 IF B\$ = "D" THEN GOSUB 2000
- 990 GOTO 70
- 1000 REM RESTART
- 1020 PRINT : PRINT " GRAPHICS BL OCK EDITOR"
- 1025 PRINT " WILLIAM COMPUTER 19 82"
- 1030 PRINT " COPYRIGHT (C) WILLI AM"

- 1033 PRINT: PRINT " PRINTED IN ";: INVERSE: PRINT "SECRETS ": NORMAL
- 1035 PRINT "THE APPLE ORCHARD" : PRINT
- 1040 PRINT : INPUT " ENTER START ADDRESS:"; A\*
- 1043 IF A\$ = "Q" THEN RETURN
- 1045 IF A\* = "" THEN 1060
- 1046 ADD = VAL (A\$)
- 1060 PRINT : INPUT " ENTER BLOCK WIDTH: "; A\$
- 1061 IF A\$ = "" THEN 1070
- 1062 IF A\$ = "Q" THEN RETURN
- 1065 X = INT ( VAL (A\$)): IF X < 1 OR X > 4 THEN 1060
- 1070 PRINT : INPUT " ENTER BLOCK HEIGHT:"; A\$
- 1071 IF A\$ = "" THEN 1080
- 1072 IF A\$ = "Q" THEN RETURN
- 1075 Y = INT ( VAL (A\$)): IF Y < 1 OR Y > 25 THEN 1070
- 1080 CALL 8208
- 1100 CX = 7 :CY = 0 :NS = 1
- 1110 RETURN
- 1200 REM EDIT
- 1210 IF NS = 0 THEN 1300
- 1220 NS = 0: HGR2 : VTAB 21
- 1221 MX = (280 X \* 35) / 2:MY = (160 Y \* 5) / 2
- 1222 HCOLOR= 2
- 1223 FOR I = 4 TO 13
- 1224 HPLOT MX I,MY I TO MX + 35 \* X + I,MY I TO MX + 35 \* X + I,MY + Y \* 5 + I TO MX I,MY I
- 1225 NEXT
- 1230 HCOLOR= 3
- 1240 FOR I = MX TO X \* 35 + MX STEP =
- 1250 HPLOT I, MY TO I, Y \* 5 + MY
- 1260 NEXT
- 1270 FOR I = MY TO MY + Y \* 5 STEP 5
- 1280 MPLOT MX,I TO X \* 35 + MX,I
- 1290 NEXT
- 1291 IF AB = 0 THEN 1300
- 1292 AB = 0: FOR I = 0 TO Y 1: FOR J = 7 TO (X + 1) \* 7 1
- 1293 HCOLOR= 3:Q = INT (J / 7): IF PEEK (10091 + Q + I \* 5 ) = 1 THEN HCOLOR= 2
- 1294 IF PEEK (9216 + J + I \* 35 ) = 1 THEN DRAW 1 AT MX + ( J - 7) \* 5 + 1, MY + I \* 5 +
- 1295 NEXT J.I
- 1300 POKE 16304,0: POKE 16 299,0
- 1310 HCOLOR= O: HPLOT MX + (CX 7) \* 5, MY + CY \* 5 TO 5 + MX + (CX 7) \* 5, MY + CY \* 5 TO

```
5 + MX + (CX - 7) * 5 MY + 5
                                               1 + (I - 7) * 5, MY + 1 + CY *
     + CY * 5 TO MX + (CX - 7) *
     5,MY + CY * 5 + 5 TO MX + (C)
                                          1580 NEXT
     X - 7) * 5, MY + CY * 5
                                           1590 HCOLOR= 3: GOTO 1310
1315 \text{ QW} = INT (CX / 7)
                                          1600 REM ASSEMBLE
1320
     GET C$
                                           1604 \text{ FADD} = 0
1330 HCOLOR= 3: HPLOT MX + (CX -
                                           1606 PRINT: PRINT " ASSEMBLING.
     7) * 5,MY + CY * 5 TO 5 + MX
      + (CX - 7) * 5,MY + CY * 5 TO
                                           1607 PRINT : INPUT " ENTER SHAPE
     5 + MX + (CX - 7) * 5, MY + 5
                                                 NO.(CR=NEXT):";A*:SNO = -
      + CY * 5 TO MX + (CX - 7) *
     5,MY + CY * 5 + 5 TO MX + (C
                                           1608 FOR I = 9 TO 0 STEP - 1: IF
     X - 7) * 5, MY + CY * 5
                                                PADD(I * 7) < > 0 THEN SNO =
     IF C$ = CHR$ (8) AND CX >
                                                I * 7 + 6 : I = 0
     7 \text{ THEN CX} = \text{CX} - 1: \text{GOTO } 131
                                                NEXT I: IF A$ = "" THEN 161
                                           1609
     0
     IF C\$ = CHR\$ (21) AND CX <
                                                IF A$ = "Q" THEN RETURN
                                           1611
     X * 7 + 6 THEN CX = CX + 1: GOTO
                                           1612 \text{ SNO} = (\text{VAL}(A\$) - 1) * 7 -
     1310
     IF C$ = "A" AND CY > 0 THEN
                                           1616 FOR I = 0 TO 6
     CY = CY - 1: GOTO 1310
                                                PRINT : PRINT " ENTER ADDRE
                                           1617
     IF C$ = "Z" AND CY < Y - 1 THEN
                                                SS SHIFT NO. ";1 + I;: INPUT
     CY = CY + 1: GOTO 1310
                                                ":";A$
     IF C$ = " " THEN 1450
1380
                                           1618 IF A$ = "N" THEN 1628
      IF C$ = "S" THEN 1500
1390
                                           1619 IF A$ = "Q" THEN RETURN
      IF C$ = "C" THEN 1550
1400
                                           1620 IF A$ = "" THEN ADD = ADD +
1405
      IF C$ = CHR$ (13) THEN POKE
                                                (X + 1) * Y:SNO = SNO + 1: GOTO
      - 16303,0: POKE - 16300,0:
                                                1695
      RETURN
                                           1627 \text{ ADD} = \text{VAL} (A$)
1410
      PRINT CHR$ (7);: GOTO 1310
                                           1628 \text{ SNO} = \text{SNO} + 1:PADD(SNO) = AD
                                                rı
1450
      POKE (CX + CY * 35 + 9216),
                                           1630 POKE 8192, I: POKE 8197, Y: POKE
      NOT ( PEEK (CX + CY * 35 +
                                                8198,X + 2: POKE 8389,(ADD /
     9216))
                                                256):YUK = (ADD / 256 - INT
1460 IF PEEK (CX + CY * 35 + 92
                                                (ADD / 256)) * 256: POKE 838
     16) = 1 AND PEEK (10091 + Q
                                                8,YUK: POKE 8403,ADD / 256: POKE
     W + CY * 5) = 0 THEN HCOLOR=
                                                8402,YUK: CALL 8368
     3: DRAW 1 AT MX + (CX - 7) *
                                          1680 \text{ ADD} = \text{ADD} + \text{Y} * (\text{X} + 1)
     5 + 1, MY + CY * 5 + 1
                                                NEXT I
                                           1695
1470 IF PEEK (9216 + CX + CY *
                                           1700
                                                 RETURN
     35) = 1 AND PEEK (QW + CY *
                                          1800
                                                 REM PRINT ADDRESSES
     5 + 10091) = 1 THEN HCOLOR=
                                          1802
                                                PRINT
     2: DRAW 1 AT MX + (CX - 7) *
                                          1808 SNO = 0
     5 + 1, MY + CY * 5 + 1
                                           1810 FOR I = 9 TO 0 STEP - 1: IF
1475
     IF PEEK (CX + CY * 35 + 92
                                                PADD(I * 7) < > 0 THEN SNO =
     16) = 0 THEN HOOLOR= 0: DRAW
                                                I:I = 0
     1 \text{ AT MX} + (CX - 7) * 5 + 1,M
                                           1815 NEXT I
     Y + CY * 5 + 1: HCOLOR= 3:
                                                 FOR I = 0 TO SNO
                                           1820
1480
     GOTO 1310
                                           1830 PRINT : PRINT " ADDRESS OF
     POKE (QW + CY * 5 + 10091),
1500
                                                SHAPE #"; I + 1; ": ": FRINT
     1: HCOLOR= 2
                                           1840 FOR J = 0 TO 6
     FOR I = QW * 7 TO QW * 7 +
1510
                                           1841 \text{ GT} = PEEK ( - 16384)
                                           1850 PRINT "
                                                                    SHIFT #"
1520 IF PEEK (I + CY * 35 + 921
                                                ;J + 1;"-";PADD(J + 7 * I)
     6) = 1 THEN DRAW 1 AT MX +
                                           1860 NEXT J
     1 + (I - 7) * 5, MY + 1 + CY *
                                           1865 PRINT : INPUT " CONTINUE LI
                                                STING?"; P$: IF P$ = "N" OR P
1530
     NEXT
                                                $ = "NO" THEN I = SNO
1540 HCOLOR= 3: GOTO 1310
                                           1866 NEXT I
     POKE (10091 + QW + CY * 5),
                                           1870 RETURN
     O: HCOLOR= 3
                                                 REM SAVE TABLE
                                           1900
1560 FOR I = QW * 7 TO QW * 7 +
                                           1910 PRINT: INPUT " ENTER FILE
     6
                                                NAME: "; A$
                                           1912 SNO = 0: FOR I = 69 TO 0 STEP
1570 IF PEEK (I + CY * 35 + 921
```

6) = 1 THEN DRAW 1 AT MX +

- 1: IF PADD(I) < > 0 THEN

SNO = I : I = O1913 NEXT I IF SNO = 0 THEN PRINT CHR\$ 1914 (7); "\*\*\*NOTHING TO SAVE": RETURN 1916 SA\$ = STR\$ (FADD(0)):LA\$ = STR\$ (PADD(SNO) \* 2 - PADD( O) - PADD(SNO - 1)) PRINT : PRINT " BSAVE "; A\$; -1920",A";SA\$;",L";LA\$ PRINT: INPUT " IS THIS O.K 1930 .?";B\$ IF B\$ = "Q" THEN RETURN 1933 IF B\$ = "" THEN 1920 1934 IF B\$ = "Y" OR B\$ = "YES" THEN 1935 1950 PRINT: INPUT " ENTER START 1936 ADDRESS (\$HEX OR DEC):";C\$ IF C\$ = "Q" THEN RETURN 1937 IF C = "" THEN 1936 1938 1939 SA\$ = C\$ PRINT : INPUT " ENTER LENGT 1944 H (\$HEX OR DEC):";C\$ IF C\$ = "Q" THEN RETURN 1945 1946 IF C\$ = "" THEN 1938 1947 LA\$ = C\$ 1948 GOTO 1920 PRINT : PRINT CHR\$ (4); "BS 1950 AVE "; A\$; ", A"; SA\$; ", L"; LA\$ 1960 RETURN DISASSEMBLE 2000 REM PRINT : PRINT " DISASSEMBLI 2010 MG..." PRINT : INPUT " ENTER START 2030 ADDRESS: "; P\$: AA = VAL (P\$) : IF P\$ = "Q" THEN RETURN IF P\$ = "" THEN 2030 2031 PRINT : INPUT " ENTER SHIFT 2034 NO.: (1-7 OR CR)"; A\$ IF A\$ = "Q" THEN RETURN 2035 2036 IF As = "" THEN SN = 0: GOTO 2044 2043 SN = VAL (A\$) - 1IF LEFT\$ (P\$,1) = "T" THEN 2044 AA = PADD(( VAL ( MID\$ (P\$,2))))) - 1) \* 7 + SN)2100 POKE 254, ((AA / 256 -TNT (AA / 256)) \* 256): POKE 255 ,AA / 256: POKE 8192,SN: POKE

8197,Y: POKE 8198,X + 2: CALL

FRINT: INPUT " ENTER FILE 2210 NAME: ": As 2215 SA\$ = "\$3000" PRINT : PRINT " BLOAD "; A\$; 2220 ", A"; SA\$ PRINT: INPUT " IS THIS O.K 2230 .?";B\$ IF B\$ = "Q" THEN RETURN 2231 IF B\$ = "" THEN 22202232 2235 IF B\$ = "Y" OR B\$ = "YES" THEN 2250 PRINT : INPUT " ENTER START 2236 ADDRESS (\$HEX OR DEC):";B\$ IF B\$ = "Q" THEN RETURN 2238 2240 IF B\$ = "" THEN 2236 2243 SA = B =2244 GOTO 2220 PRINT : PRINT CHR\$ (4);" B 2250 LOAD "; A\$; ", A"; SA\$ 2260 RETURN

3

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2200 REM LOAD

2110 AB = 1:NS = 1: RETURN

#### Graphics Block Editor

2000 - 00 18 06 07 83 18 06 77 2008- 05 00 0D 03 AC 00 0D 07 2010 - A9 00 AA 9D 00 24 9D 00 2018- 25 9D 00 26 9D 00 27 AC 2020- 30 CO E8 DO EE 60 A9 00 2028 - 8E 07 20 85 FB A2 08 0A 2030 - 26 FB 0E 09 20 90 08 18 2038- 6D 08 20 90 02 E6 FB CA 2040 - DO ED 85 FA AE 07 20 60 2048 - AD 01 20 8D 08 20 A9 23 2050 - 8D 09 20 20 26 20 18 A5 2058- FB 69 24 85 FB 38 A5 FA 2060 - ED 00 20 85 FC A5 FB E9 2068 - 00 85 FD AD 02 20 8D 08 2070 - 20 A9 07 8D 09 20 20 26 2078 - 20 18 A5 FA 65 FC 85 FC 2080 - A5 FB 65 FD 85 FD A9 05 2088-8D 08 20 AD 01 20 8D 09 2090 - 20 20 26 20 18 A5 FA 6D 2098 - 02 20 85 FA A5 FB 69 00 20A0- 85 FB 18 A9 6B 65 FA 85 20A8- FA A5 FB 69 27 85 FB 60 20BO- A2 00 A0 00 8C 01 20 A0 20B8- 01 8C 02 20 20 48 20 A0 20C0- 00 B1 FA 9D 48 33 A0 06 20C8- AD 30 CO B1 FC 18 FO 01 20D0 - 38 3E 48 33 88 C0 FF D0 20D8- EF E8 EE 02 20 AD 02 20 20E0 - CD 06 20 D0 D7 EE 01 20 20E8- AD 01 20 CD 05 20 F0 03 20F0- 4C B7 20 60 20 10 20 A9 20F8- 00 8D 01 20 A9 01 8D 02 2100- 20 AD 30 CO 20 48 20 AO 2108- 00 B1 FE 4A 90 06 AA A9 2110-01 91 FC 8A C8 4A 90 06 2118- AA A9 01 91 FC 8A C8 4A 2120- 90 06 AA A9 01 91 FC 8A 2128 - C8 4A 90 06 AA A9 01 91 2130- FC 8A C8 4A 90 06 AA A9 2138- 01 91 FC 8A C8 4A 90 06 2140 - AA A9 01 91 FC 8A C8 4A 2148- 90 06 AA A9 01 91 FC 8A 2150- 4A 90 06 A9 01 A0 00 91 2158- FA 18 A5 FE 69 01 85 FE 2160 - A5 FF 69 00 85 FF EE 02 2168 - 20 AD 02 20 CD 06 20 D0 2170- 90 EE 01 20 AD 01 20 CD 2178-05 20 D0 80 60 80 60 07 2180 - CD 01 42 59 54 45 0D 08 2188 - C4 01 4E 42 59 54 45 0D 2190 - 07 86 01 44 49 53 32 0D 2198-06 C9 01 52 4F 57 0D 06 21AO- CD 01 52 4F 57 0D 07 C4 21A8- 01 4E 52 4F 57 0D 07 86 21B0- 01 44 49 53 31 0D 03 A5 21B8- 00 0D 03 E1 20 0D FF 00 21CO- FF FF FF FF FF FF FF 21C8- FF FF FF FF FF FF FF 21DO- FF FF FF FF FF FF FF 21D8- FF FF FF FF FF FF FF 21EO- FF FF FF FF FF FF FF 21E8- FF FF FF FF FF FF FF 21FO- FF FF FF FF FF FF FF 21F8- FF FF FF FF FF FF FF 2200 - 01 00 04 00 2D 35 3F 37 2208 - 2D 35 3F 3F 00 FF FF FF

2210- FF

#### **Draw Routines**

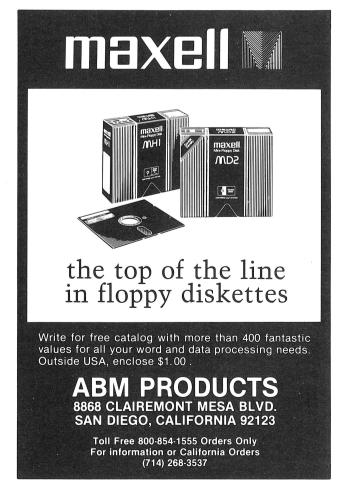
6000- 20 24 28 2C 30 34 38 3C 6008-20 24 28 2C 30 34 38 3C 6010 - 21 25 29 2D 31 35 39 3D 6018-21 25 29 2D 31 35 39 3D 6020- 22 26 2A 2E 32 36 3A 3E 6028- 22 26 2A 2E 32 36 3A 3E 6030 - 23 27 2B 2F 33 37 3B 3F 6038- 23 27 2B 2F 33 37 3B 3F 6040 - 20 24 28 2C 30 34 38 3C 6048- 20 24 28 2C 30 34 38 3C 6050 - 21 25 29 2D 31 35 39 3D 6058 - 21 25 29 2D 31 35 39 3D 6060- 22 26 2A 2E 32 36 3A 3E 6068- 22 26 2A 2E 32 36 3A 3E 6070 - 23 27 2B 2F 33 37 3B 3F 6078- 23 27 2B 2F 33 37 3B 3F 6080 - 20 24 28 2C 30 34 38 3C 6088- 20 24 28 2C 30 34 38 3C 6090 - 21 25 29 2D 31 35 39 3D 6098 - 21 25 29 2D 31 35 39 3D 60AO- 22 26 2A 2E 32 36 3A 3E 60A8- 22 26 2A 2E 32 36 3A 3E 60BO- 23 27 2B 2F 33 37 3B 3F 60B8- 23 27 2B 2F 33 37 3B 3F 60C0- 20 24 28 2C 30 34 38 3C 60C8- 20 24 28 2C 30 34 38 3C 60D0- 21 25 29 2D 31 35 39 3D 60D8-21 25 29 2D 31 35 39 3D 60E0 - 22 26 2A 2E 32 36 3A 3E 60E8- 22 26 2A 2E 32 36 3A 3E 60F0- 23 27 2B 2F 33 37 3B 3F 60F8- 23 27 2B 2F 33 37 3B 3F 6100-00 00 00 00 00 00 00 00 6108 - 80 80 80 80 80 80 80 80 6110-00000000000000000 6118-80 80 80 80 80 80 80 80 6120 - 00 00 00 00 00 00 00 00 6128 - 80 80 80 80 80 80 80 80 6130-00000000000000000 6138-80 80 80 80 80 80 80 80 6140 - 28 28 28 28 28 28 28 28 6148- A8 A8 A8 A8 A8 A8 A8 A8 6150 - 28 28 28 28 28 28 28 28 28 6158- A8 A8 A8 A8 A8 A8 A8 A8 6160 - 28 28 28 28 28 28 28 28 28 6168- A8 A8 A8 A8 A8 A8 A8 A8 6170 - 28 28 28 28 28 28 28 28 28 6178- A8 A8 A8 A8 A8 A8 A8 A8 6180 - 50 50 50 50 50 50 50 50 6188- DO DO DO DO DO DO DO 6190 - 50 50 50 50 50 50 50 50 6198- DO DO DO DO DO DO DO 61AO- 50 50 50 50 50 50 50 50 61A8- DO DO DO DO DO DO DO 61B0 - 50 50 50 50 50 50 50 50 61B8 - DO DO DO DO DO DO DO 61CO- 8E 04 03 8C 05 03 AD 03 61C8- 03 AA 18 6D 06 03 8D 00 61DO- 03 AO 00 BD 00 61 18 6D 61D8- 02 03 85 FC BD 00 60 6D 61EO- 01 03 85 FD B1 FA 91 FC 61E8- C8 B1 FA 91 FC 18 A5 FA 61F0- 69 02 85 FA A5 FB 69 00 61F8- 85 FB E8 EC 00 03 D0 D1

6200 - AD 04 03 AC 05 03 60 8E

6208- 04 03 8C 05 03 AD 03 03

6210- AA 18 6D 06 03 8D 00 03 6218- AO OO BD OO 61 18 6D O2 6220- 03 85 FC BD 00 60 6D 01 6228 - 03 85 FD B1 FA 91 FC C8 6230- B1 FA 91 FC C8 B1 FA 91 6238- FC 18 A5 FA 69 03 85 FA 6240 - A5 FB 69 00 85 FB E8 EC 6248- 00 03 D0 CC AD 04 03 AC 6250 - 05 03 60 8E 04 03 8C 05 6258- 03 AD 03 03 AA 18 6D 06 6260- 03 8D 00 03 A0 00 BD 00 6268- 61 18 6D 02 03 85 FC BD 6270-00 60 6D 01 03 85 FD B1 6278- FA 91 FC C8 B1 FA 91 FC 6280 - C8 B1 FA 91 FC C8 B1 FA 6288- 91 FC 18 A5 FA 69 04 85 6290 - FA A5 FB 69 00 85 FB E8 6298- EC 00 03 D0 C7 AD 04 03 62AO- AC 05 03 60 8E 04 03 8C 62A8- 05 03 AD 03 03 AA 18 6D 62BO- 06 03 8D 00 03 AO 00 BD 62B8- 00 61 18 6D 02 03 85 FC 62CO- BD 00 60 6D 01 03 85 FD 62C8- B1 FA 91 FC C8 B1 FA 91 62D0- FC C8 B1 FA 91 FC C8 B1 62D8- FA 91 FC C8 B1 FA 91 FC 62E0- 18 A5 FA 69 05 85 FA A5 62E8- FB 69 00 85 FB E8 EC 00 62F0- 03 D0 C2 AD 04 03 AC 05 62F8- 03 60 8E 04 03 8C 05 03 6300- AD 03 03 AA 18 6D 06 03 6308-8D 00 03 A0 00 BD 00 61 6310- 18 6D 02 03 85 FC BD 00 6318- 60 6D 01 03 85 FD A9 00

6320- 91 FC C8 91 FC E8 EC 00 6328- 03 D0 E0 AD 04 03 AC 05 6330 - 03 60 8E 04 03 8C 05 03 6338- AD 03 03 AA 18 6D 06 03 6340-8D 00 03 A0 00 BD 00 61 6348- 18 6D 02 03 85 FC BD 00 6350- 60 6D 01 03 85 FD B1 FA 6358- 11 FC 91 FC C8 B1 FA 11 6360- FC 91 FC 18 A5 FA 69 02 6368-85 FA A5 FB 69 00 85 FB 6370 - E8 EC 00 03 D0 CD AD 04 6378 - 03 AC 05 03 60 8E 04 03 6380 - 8C 05 03 AD 03 03 AA 18 6388- 6D 06 03 8D 00 03 A0 00 6390 - BD 00 61 18 6D 02 03 85 6398 - FC BD 00 60 6D 01 03 85 63AO- FD B1 FA 6D 97 03 91 FC 63A8- C8 B1 FA 6D 07 03 91 FC 63BO- 18 A5 FA 69 02 85 FA A5 63B8- FB 69 00 85 FB E8 EC 00 63CO- 03 DO CB AD 04 03 AC 05 63C8-0360



#### **Review:**

# Putting your Files in Order AMPER-SORT/MERGE II

#### by Clark L. Congleton

#### **SYNOPSIS**

Name:AMPER-SORT/MERGE II Author:Alan G. Hill Offered by:S & H Software Box 5 Manvel, ND 58256 (701) 696-2574

Function:Stand-alone sort/merge utility for APPLE DOS 3.3 text files
Requirements:48K APPLE II Plus, or 48K APPLE II with RAM or ROM card, APPLE DOS 3.3, one or more disk drives
Languages:Applesoft BASIC and machine language
Documentation:Twenty-four page instruction manual and training disk
Price:\$69.95 (plus \$3.00 postage/handling)

Most microcomputer enthusiasts have heard of or experienced at least one "horror story" of a sort taking literally hours to resequence just a handful of records. The more colorful stories have the sort run failing for some reason just before completion of the sort. With the continuing increase in the use of microcomputers for business and accounting applications, there has been a corresponding increase in the demand for a fast, reliable record sorting capability. AMPER-SORT/MERGE II (A-S/M) is a well-designed response utility which functions in a manner similar to sort/merge packages on larger computers. A-S/M provides very fast in-memory (RAM) sorting of records from multiple input files, and extends its capacity by using intermediate sort work files when needed. It can also perform up to a five-way merge of presorted files. The merge operation required no work files.

AMPER-SORT/MERGE II is an update to AMPER-SORT/MERGE, released earlier this year. That version, in turn, is descended from AMPER-SORT II, which first appeared in 1979. AMPER-SORT II provided very fast in-memory (RAM) sorting, but it used no work files and, therefore, was much more limited in capacity. Also, as the difference in names suggests, it did not have a merge feature (although sorting files together accomplishes the same end with less efficiency).

#### **Features**

- Sorts up to five input files into a single output file.
- Merges up to five presorted input files into a single output file.
- Permits up to five key fields for sorting and merging, allowing mixed ascending and descending sequence keys.

- Accepts sequential or random APPLE DOS text files as input.
- Sort parameters may be entered from the keyboard or from saved parameter files.
- Is compatible with most data base programs that create standard DOS 3.3 text files (e.g., Visicorp's Visifiles).
- Offers the option of a tag-sort technique for direct files which only places record pointers on the sorted output file.

#### Limitations

The following limitations for AMPER-SORT/MERGEII are either stated or implied by the instruction manual:

- For sorting, the maximum combined size of the unsorted input file is about 125k bytes.
- Sequential or random files may be used as input, but both types may not be combined as input to a single run.
- The maximum permissible record length for random files is 256 bytes. This is also the maximum "average record length" which may be specified for sequential input files.
- During sorting, the package will not automatically copy over 'zero' records for random files which are used as base records and have a different format. The instruction manual does supply a small BASIC program which can perform this copy operation.

#### **Performance**

Timing runs were conducted to evaluate the performance characteristics of AMPER-SORT/MERGE II. Each timing run sorted a single sequential input file using a single sort key field. Input records were in a "worst case" sequence, requiring A-S/M to completely invert or reverse the sequence of the records. Also, the output monitor feature of A-S/M was used, which displays every record written to a diskette, either on SORTWORK or SORTOUT files. According to the documentation, this monitoring reduces the efficiency of the sort by about five percent.

Timing runs were clocked with a stopwatch, and results are probably accurate within plus or minus five seconds for each run. Large enough files were used so that this did not distort the results. This level of accuracy was sufficient to determine the general performance characteristics. Each sort was clocked from the time that the first unsorted input record was read to the time that the last sorted output record was written. The clock was stopped during periods when A-S/M halted to allow the user to change diskettes.



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**TDE** system requirements: 48K Apple ][ or ][+, ROM/RAM card, DOS 3.3 and one or more disk drives.

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● John Mitchener of PEELINGS II: "The speed increase with **TDE** is awesome and is probably worth the price of the program alone, without all the other features . . . AA rating."

\*To achieve speeds even faster than a hard-disk drive, combine TDE with Axlon's RAMDISK 320K Memory System.

- Val Golding, Editor of Call-A.P.P.L.E.: "(TDE) stands as a shining example of how utility and application programs take into account every possible system configuration."
- Clark Congleton of The Apple Orchard: "The Quick-load capabilities will make this package attractive to anyone who spends a lot of time at the keyboard."
- Chuck Carpenter of INFOWORLD: "Results in a disk that will boot very fast — in any Apple system."

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A-S/M II can sort/merge from one to five unsorted files into a single file of up to 125K in size per disk.

A-S/M II's "package" includes: utility disk, training disk, step-by-step instruction manual, and S&H's new Supercat/menu.

A-S/M II's system requirements: 48K Apple ][ with ROM or RAM card or 48K Apple ][+ with DOS 3.3 and Disk II.

Dealer inquiries invited

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Three groups of timing runs were conducted. Each group analyzed the impact on sort performance of a different attribute of the file to be sorted. The three attributes analyzed were:

- File size (number of records)
- Record length
- Sort key length

During each group of sort test runs, two of these factors were held constant while a third was varied.

Figure 1 presents the results of sort runs in which the file size was varied. For these tests, the record length and sort key length were held constant at 30 and 10 bytes, respectively. The jog in the graph represents the point at which A-S/M had to resort to SORTWORK files for temporary data storage. Above and below this point, the impact of changing file size appears to be linear.

Figure 2 presents the results of sort runs in which the record length was varied. For these tests, the file size was held constant at 1,000 records and the sort key length was held constant at 10 bytes. Again, the jog in the graph occurs when A-S/M began using work files. The increase in time is caused by the additional I/O operations performed. For large files, the software must now perform four I/O operations for each input record (read SORTIN, write SORTWORK, read SORTWORK, write SORTOUT). For small files, the SORTWORK I/O is not needed. The relationship of record length to sort time also appears to be linear above and below the jog in the graph.

The third series of test runs varied the sort key length. These runs showed no significant variation in sort time, regardless of whether the sort key was 5 bytes or 50 bytes in length. A separate test also demonstrated that the input sequence of the SORTIN file does not significantly affect the time that A-S/M requires to perform the requested operation. That is, it takes just as long to sort a file into its original input sequence as it does to totally reverse the sequence of records in the file.

The explanation for the observed performance characteristics of A-S/M is apparent from watching the timing runs with the monitor option turned on. The actual memory sorting of a file segment is so fast that it is a negligible part of the sort times in the tests conducted. Almost all of the time in these runs was spent in disk I/O operations. Not that this disk I/O is slow. The instruction manual indicates that disk reads and writes are performed by calls to machine language. Their speed over normal BASIC I/O is demonstrated by the fact that the Applesoft "Quickee" which was used to create each test file (one operation per record) took almost as long to execute as the A-S/M sort of the file (four operations per record). Since AMPER-SORT/MERGE spends most of its time in disk I/O, it could be expected to really sizzle when using a hard disk or RAM disk substitute is configured to run under DOS 3.3.

Finally, when given valid parameters, AMPER-SORT/MERGE-Il always performed the requested operation correctly, placing the input data into exactly the sequence specified. of interface with the user is the control module which accepts and edits the sort/merge parameters. Given a valid set of parameters, A-S/M will function admirably, but it will also accept various types of invalid parameters and still attempt a sort or merge. Up to five sort/merge key fields are permitted. For each field, the user supplies:

- The starting position of the key field in the record.
- The ending position of the key field in the record.
- The Ascending/Descending option ("A" or "D")

AMPER-SORT/MERGE II accepted the following invalid parameter conditions:

FIGURE 1 - Varying File Size

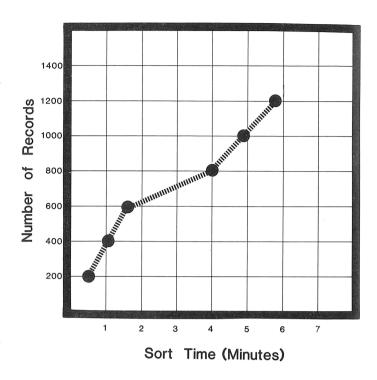
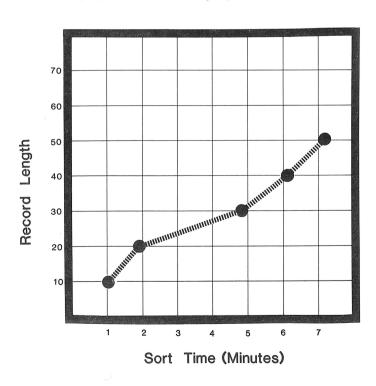
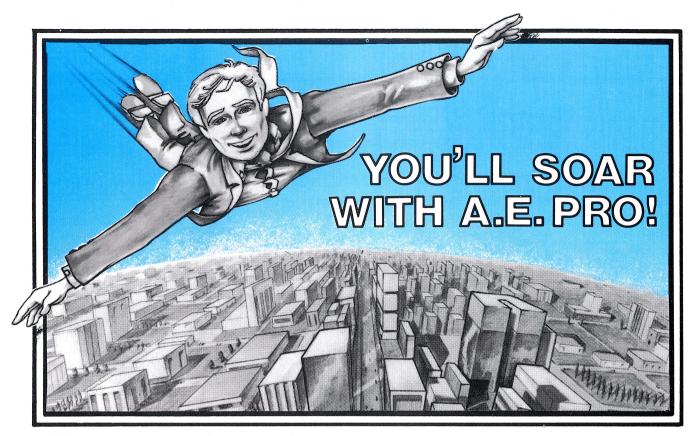


FIGURE 2 - Varying Record Length





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- Overlapping key fields.
- Identical key fields.
- A request to perform a merge in a single input file.

#### User Interface

This is an area where AMPER-SORT/MERGE II has improved considerably over the previous version of the package, but there is still room for additional improvement. The major point

The software recognized some other invalid conditions relating to these parameters, such as zero or negative values, but sometimes got into an endless loop trying to accept corrected values. When this happened, rebooting seemed to be the only solution.

It is especially important that the user interface for a sort/merge package be more "bullet-proof", since this type of package can be expected to be used frequently in business environments. In such cases, the user is likely to be a non-technical person who is simply following instructions, and may not be able to recognize his or her own errors in entering parameters.

There is also a couple of recommended improvements to parameter handling which the reviewer believes would make AMPER-SORT/MERGE more convenient to use:

- Make the MERGE option a major function on the main menu. Currently it is just an option on the parameter entry screen.
- Do not include the input and output file names as required fields in the saved parameter file. This tailors the parameters to such a degree that the utility of saved parameter files is reduced.

#### Documentation

The documentation which is provided as a part of the AMPER-SORT/MERGE package includes a 24 page instruction manual and a training disk.

The instruction manual is generally well-written, easy to understand, and fairly complete. It includes explanations of the purpose of each parameter and provides several examples which include sample parameter input screens. There are a few areas which are touched a little lightly, such as error recovery, but the microcomputer enthusiast will find this manual well above average. It is the business user discussed earlier who would benefit most from expansion of the instruction manual.

The training disk would be better titled a demonstration disk. It simulates live runs of half a dozen examples. The software conducts the demo, providing both questions and answers. The exercise is strictly hands off for the user, except to select which demo is to be run. The biggest problem with using the training disk is that even though it steps through the parameters at a reduced pace, it is still moving too fast for the novice to follow. Since this disk is of use only when first learning about A-S/M, this is a major drawback.

#### Conclusions

For the part timer or professional who has a continuing requirement to sort relatively large APPLE DOS 3.3 text files, the AMPER-SORT/MERGE II package is definitely recommended. Although not cheap, the purchase price is quite reasonable considering the amount of computer time and general user aggravation which can be saved.

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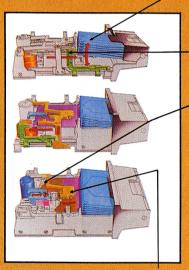
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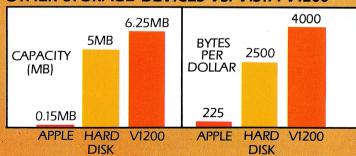
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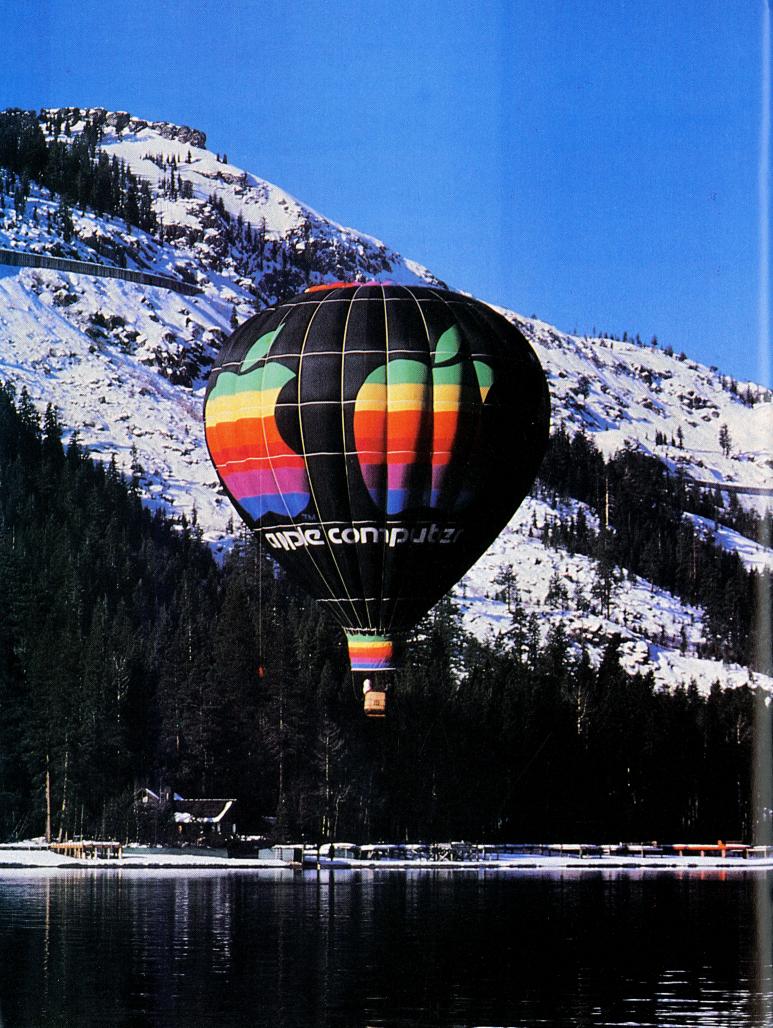
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# The Ubiquitous Apple Logotype

#### by Ken Silverman

When the two Steves decided to name their new company "Apple", they really didn't know what they were starting. In fact, with clubs, newsletters, and other products, the use of some form of the word has mushroomed (is that also a fruit?). Newsletters called the "Cider Press" (helping you squeeze more out of your Apple), "Apple Bits", "Applesauce" and clubs named the "Apple Core", "Apple Pi", "Appleholics Anonymous", not to mention the legendary "Rubber Apple" of (where else?) Akron, Ohio, are just a few that come to mind.

Now consider the corporate logo, in the silhouette of an Apple with a bite taken out of it. I don't believe they really knew how popular the symbol would become. It has almost become a cult. That logo, in many variations, has appeared on almost anything that would hold still long enough to have it applied, a situation which has provided full employment for Apple's Legal Department. (The IAC, by the way, is licensed by Apple to use the name and logo; others who use it for commercial purposes should check the requirements.)

Let's take a look at some of Apple logo stuff that exists today; with Christmas coming, you could view this as a "Catalog" of items, along with some of the price tags. At least, it's a look at some imaginative creations.

As many know from visiting their local Apple dealers, costume jewelry is available in the form of pins, tie tacks, necklaces, belt buckles, key chains, and earrings. There are also Apple coffee mugs, ties, posters, and many many more items using the Apple symbol. These items, because of the trademark, are marketed by Apple through Apple dealers, or through the Apple Gift Catalog.

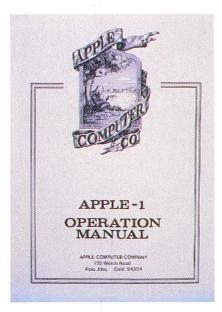
A related line of jewelry items is beginning to appear, with the logos of Apple User Groups; these usually carry some representation of an apple in their designs, and are available from the groups.

During the past few years, there have been individuals who have taken it upon

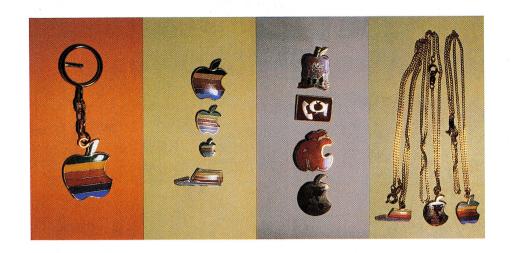




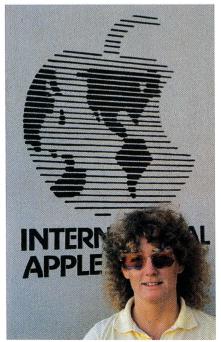




Courtesy of Apple Computer, Inc









themselves to have a personal item made that reflects that symbol. These are one of a kind items for personal use and do not violate the copyright laws but don't ask to have one of these duplicated, on a for sale basis, without first getting permission from Apple Computer, Inc.

The Sail Boat · the Apple 1 (Cover Photo) is owned by Rod Holt, one of the original Apple employees and currently Vice President of Engineering. The vessel is worth approximately \$150,000. If you are in the San Francisco area and you look out on the Bay on a weekend, you might just see the Apple Spinnaker.

At an earlier time Apple Computer, Inc. sponsored a race car – the Apple colors were displayed on the Porsche. Apple no longer sponsors this car, but at the time, when it went racing by, the colors blended into a colorful streak.

A more often seen item is Apple Computer's official "Air Force" - the Apple Hot Air Balloon. It is used to open computer fairs, special events (that Apple might attend) and for dealer relations. It was built by Apple (no price given) and is owned by Apple. Captain Mick and his crew take it all over the States, and if you get a chance to take a flight there is a special Apple Balloon Pin you can get for taking the flight. In addition, the small-scale Hot Air Balloon replica was hand made, and cost \$150. It is about 3 feet high and 36 inches in diameter.

The **Hang Glider** (Cover Photo) is owned by Ernie Reguly and if you have ever seen one of these in flight is it truly a free spirit. Ernie says it's worth about \$1500 and he flies it in the areas around San Francisco.

As a person who likes trinkets, and having a friend who custom designs jewelry, this writer had the **gold signet** ring made. The color stripes are represented by emeralds, diamonds, opals, sapphires, and rubies. Its worth is in the area of \$700.

Other items shown are a hand made wooded trivet, stained glass, embroidery, some costume jewelry, and you'll see Editorial Assistant Donna Caldwell wearing a pair of the Apple "sunnglasses" that Woz had made.

That's a wide-ranging selection; if you have any trinkets or other items you have made using the symbol, send us a picture and a brief explanation about it. We'll add your contributions to a future article.

All photos this page by author.

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Graph Types			
Line	Yes	Yes	Yes
Vertical Bar	Yes	Yes	Yes
Horizontal Bar	Yes	No	No
Side-by-side Bar	Up to 4	2	4
Pie	Yes	Yes	Yes
Partial Pie	Yes	No	No
Scattergram	Yes	Yes	No
Curve Fitting	5 Kinds	1	None
Data Points (Max.)	3500+	645	36
Plotter	Virtually	None	H-P7470A
Compatible	Any		Only
Compatible	Pascal	BASIC	pfs
File Types	BASIC	VisiCalc	VisiCalc
	VisiCalc		
Math Functions	Yes	Yes	No
Available Colors	6	4	4

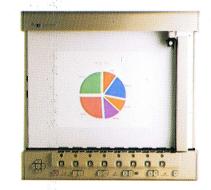
Apple Business Graphics is available for both the Apple II and Apple III.

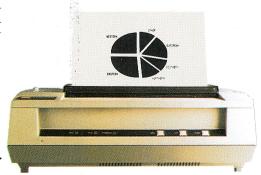
Equally important, with our graphics package you'll find more ways to see what you're doing. On the monitor of your choice. And on virtually any printer or plotter on the market.

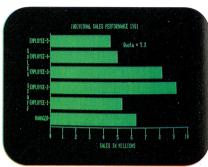






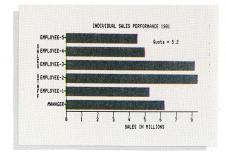




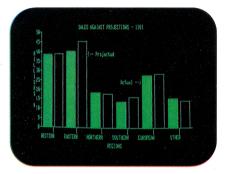


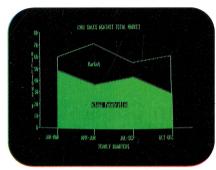


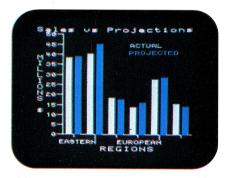


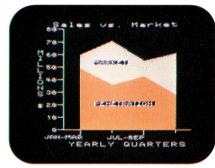


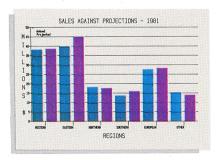
# graphics are alike. pictures to prove it.

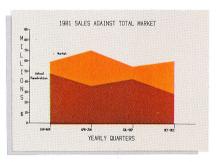


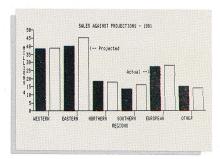


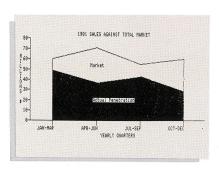












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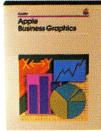
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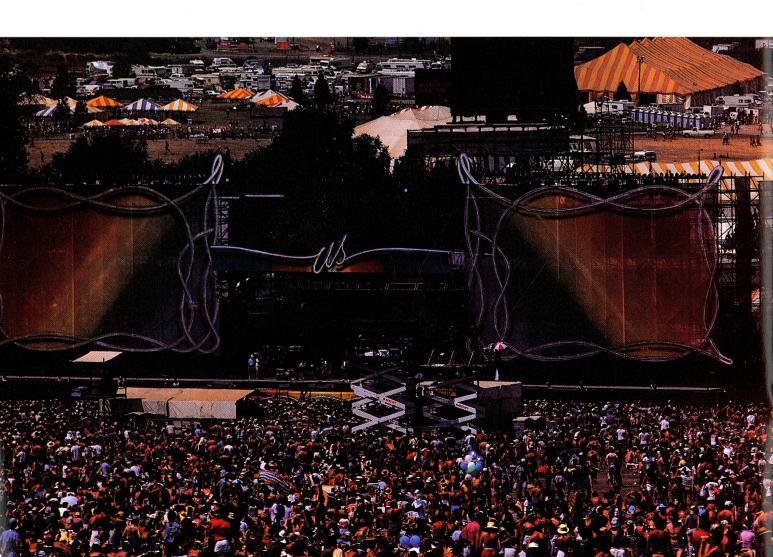
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# "... and today, **US** is Thousands of us!"

by JudyAnn Christensen



In another context, it might have formed the basis for a video game.

Picture this: the sky filled with a battalion of blimps, helicopters, hot air balloons, and laser beams traversing the horizon. Beneath them, 300,000 dusty music and technology lovers, wandering minstrels, magicians, sword swallowers and mimes carpet the valley below the San Bernardino Mountains' starkly beautiful foothills.

Sound intriguing enough to inspire electronic adventures? Perhaps, but in real life, it's the stage for Apple Computer Co-Founder Steve Wozniak's \$12.5 million Labor Day Weekend US Festival and Technology Fair.

Thirty-two year old "Woz", as his innumerable friends call him, is the Sunnyvale wonder who rose from the Home Brew Computer Club to become a multi-millionaire with the Apple computer. Less than a year ago, he formed Unuson (Unite Us In Song) Corporation to organize the US Festival, because, "We're just celebrating something going on around us," explains Woz. "There's a lot worth celebrating in music and

It looks like Woz' US celebration will go down in history as one of the greatest gatherings of rock luminaries since some time back in the '70s. Concertgoers of all ages listened to twenty of the hottest names in the music industry, including The Police, Fleetwood Mac, The Cars, Tom Petty and the Heartbreakers, Pat Benatar, the Kinks, the Grateful Dead, the B-52's, and Santana.

Those needing refuge from the beat and the heat (113 degrees) headed for five air-conditioned technology fair tents. A total of 75 electronics companies, many of them Apple vendors demonstrating Apple-based products, sponsored exhibits running the gamut from Mattel's computerized drum simulator, Staher's no-etch circuit boards, alphaSyntauri's computerized keyboards and synthesizers, Visionary Electronics' computer message systems, Atari's and Radio Shack's computers, Eagle Furniture's computer furniture, Robot Race People's robots and Eclectic Electric's video graphic displays. Apple was well-represented with displays of software and hardware, and by artist Saul Bernstein (See Apple Orchard, July-August, 1982) who drew portraits of the rock-and-roll stars and passers-by on an Apple Graphics Tablet.

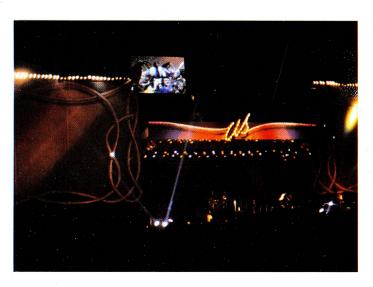
Will there be more concerts? Woz says "Yes." He's looking at Paradise Lake, California for the next one, and Woz wants to upgrade the technology side of the Festival. "We had started out with a heavy emphasis on technology, but the music got so good that the technology segment lost momentum," he says, adding that he believes that even more people at future concerts will be examining the technology exhibits.



The exhibitors think so too. Most exhibitors said they met as many technical people as they did rockers whose only computer contact had been the paddles of a video game.

Woz also said he had been counting on more participation from personal computer users' groups to help make the link between new technologies and popular music. Unuson staffers canvassed user group lists to contact hobbyists who might be interested in setting up exhibits. Woz expects that more user groups will be enticed to participate in future ventures because of the Labor Day weekend success.

Unfortunately, two of the more popular exhibits were closed throughout much of the Festival; they were victims of heat and dust damage. The Ecstasy and Technology Pavillion's Sensonics Theater was a state-of-the-art environment for high-tech artists to show their sound and light creations and "to communicate with Extra Terrestials". When it was functioning, the theater's dome (which was designed on an Apple computer) pulsed with green and red laser lights, and hundreds of strobes and multicolored spotlights. The other casualty was the E. T. Museum which displayed props from high-technology movies.





Then there was the high-technology discussion tent. Topics under this big top ranged from jazz pianist Chick Corea explaining how he created the first computerized soundtrack for a book; to Bob Moog of Synthesizer fame, discussing the history and future parameters of electronic music; to Stan Kent of Delta Vee, Inc., a non-profit corporation that works with NASA on spacecraft design and research, speaking on career possibilities and the role of micro-computing in the Space Age.

To organize all of this, Woz gathered about him a highpowered staff including rock promoter Bill Graham, a former construction superintendent for Disney World, the financing director from The Empire Strikes Back, and a retired Air Force Lieutenant Colonel to head the security force. Inevitably, Woz linked the management team with an Apple-based electronic mail network. In addition, Unuson staffers kept budgets, timelines, PERT charts and files on Apple computers. They also used Apples to view computer games before installing them at the Festival.

Yet, some things just couldn't be accounted for, even on Apples. Woz and Candi's first child, Jessie John ("J.J.") Clark, was born the day before the Festival. As if that wasn't amazing enough, the infant weighed 6 pounds, 5.02 ounces (where have we seen "6502" before?)

'Jessie joined us because he didn't want to miss the Festival," said Woz on Friday. "Wednesday, US was the two of us, Thursday, US was the three of us, and today US is thousands of us."

The Festival was born quite efficiently also. Seating was no problem in the 50-acre man made amphitheater carved from 340,000 cubic yards of mountain. Heat prostration was more or less under control too, even though temperatures were from 20 to 40 degrees hotter than had been predicted. Woz planned for two water pumps to spray the masses with a fine mist, two swimming holes, lakes, two oases capable of cooling 5,000 people at a time, a million soft drinks, 800 water outlets, showers, two beer gardens, and many, many personal spray bottles.

Transportation was well-coordinated; a specially constructed temporary freeway ramp gave easy access to the concert site. VIPs flew in by helicopter, and special public buses shuttled attendees to 382 acres of lined parking places and the 110,000 campsites. Like a small city, the site included hospitals, 150 food stands located every 15 feet around the rim of the concert are, 1,100 security people, 600,000 hot dogs and a convenience store. There were even 2,000 portable toilets, which Unuson staffers say is the best audience-to-toilet ratio in outdoor event history. "Woz wanted to make this a concert without any lines," explained concert organizer Peter Ellis.

But the piece de resistance was the 240-foot by 140-foot stage. Its 400,000-watt sound system is reported to be the largest ever constructed. The three gigantic Eidaphor video screens, whose graphics displays were designed on Apple Graphics Tablets, are modeled after the screens in Los Angeles' Dodger Stadium. Says Woz, "When I first saw those screens, I thought, 'I'd love to get on them during a break and play a video game' "his voice tinged with youthful enthusiasm as his hands secured his US baseball cap from the desert's night winds.

Instead of video games, closeups of the musicians and a two-way transmission from the Soviet Union appeared on the screens. A live Intelsat satellite linkup with a television studio in Moscow beamed the US Festival to 300 Soviet rock fans, while the Soviets simultaneously broadcast a Moscow travel video to the US audience. They loved it; a minute-long roar ensued when Eddie Money, who was onstage at the time, screamed, "Let's show these 'Russkies' what great rock'n'rollers we are!"

Onstage as well as off, US concertgoers were intrigued by a wide variety of technology. Herbie Hancock jammed onstage with the group Santana, using an alphaSyntauri synthesizer, and the Talking Heads used several synthesizers for their perverse music style. Ironically enough, Woz' personal favorite among the US entertainers, country/western singer Jerry Jeff Walker, had this to say about technology: "I don't touch the stuff."

#### Pete Burnight and Martha Sessums obviously enjoying their weekend at work.



# ...and a Network 'Round the World

"Why?"

That was the question on the tips of most tongues at the US Festival.: "Why is Steve Wozniak going to all the trouble of putting this event together?"

Well, it wasn't because he wanted to make money. That was clear when Woz' spirit remained undampened by paltry pre-concert ticket sales. "I found it easier to get \$12.5 million together for this festival than to come up with the \$300 to start Apple," mused Woz before he learned that the concert had in fact ended up in the black.

What he wanted to achieve, and appears to have achieved, is to advance the arts and science, respectively, as well as to create a union of mankind with these two subjects. That union, and the reason why Woz bankrolled the festival, is the US Network.

What is the US Network? So far, it's linked to 100 locations worldwide. Woz and Unuson donated about 25 network systems to colleges and universities. The systems include an Apple computer to access the network, a large projection screen to view the network programming, and a satellite dish to pick up the network's Westar satellite emissions. The transmissions, which are intended to be educational as well as entertaining, are broadcast by National Public Radio (NPR) over FM sub bands.

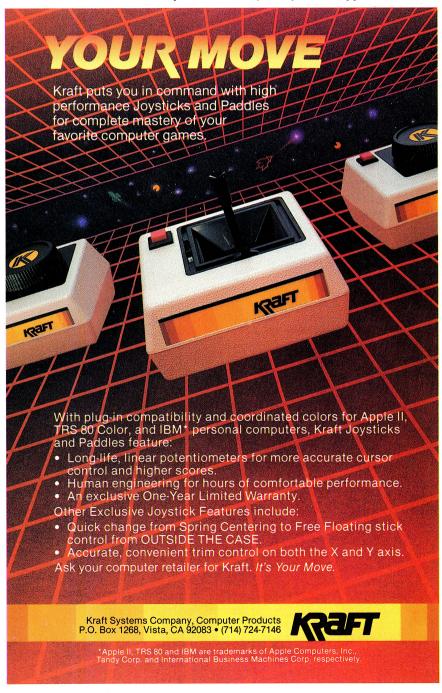
After Woz gathered the current greats of rock-and-roll for the concert, he broadcast them around the world over the US Network. The concert's Friday and Saturday night two-way transmissions with the USSR — merely small samples of what the Network is capable of doing — were the first times the US Network publicly flexed its muscle.

"The US Festival commemorated the start of the US Network by hosting a historic two-way transmission with the USSR," said Festival Coordinator Peter Ellis. "Besides broadcasting some really fine entertainment over the Network, viewers were treated to Russians and Americans dancing together. The press didn't know much about this network before the festival, because we wanted to use it successfully before we publicized it."

According to Woz, the US Network will actually be used on four levels. After the first phase of college and university links is completed, networkees will be able to see anything from US programs to interactive lectures. The second phase

will be to set up special international centers, such as the Bangladesh Center for the Eradication of Hunger and Disease, and link them so that they can further important research and education. The third phase will link high schools, and the fourth will link individual homes over telephone modems.

"In the future, this network programming will allow people to get a B.A., M.A., or Ph.D. at home, or even to get a consumer rating on the stores in town," says Woz. "Putting this network together is the second time in my life that I've seen so much enthusiasm and spirit. People are so excited that they don't want to leave work. It's just like the first couple of years at Apple."



# THEM

# by Alan B. Fid

I always used to think Labor Day Weekend was time for relaxing. Usually I go down to Uncle Zeb's store for a while, shootin' the breeze with the boys and shooting cans off the fence. Then we'd all go over to the Campbell farm, 'cause that's what we been doing for years. Ida Sue always puts on the best pig pickin' every Labor Day. We all eat till we're fatter than a cow loose in the grain field. Then there's the catfish pond — one of the best fishin' holes this side of the Haw River. But the part I like best comes after dinner. Once the sun sets, Rob takes all the boys back in the woods behind the curing sheds where he's got his still drippin' away. 'Bout this time the first batch from the corn harvest is ready, which lights you right up and makes you forget all about farmin' till Wednesday at least. Well, that's what Labor Day is usuallylike. This year was real different.

Last April my cousin, Mary Ann, moved out to Los Angeles to marry this city fella she'd met over in Durham. Well, Mary Ann was missing the family and all, so we decided we ought to go visit her for the long weekend. That Thursday night Betsy-Ann, our daughter Maggie Sue, and I flew out there. Turned out that Mary Ann's pending husband knew this Woz guy and had gotten us all passes to this US Festival thing. I was kind of worried till I heard it was a computer show too, then I figured I could at least talk to some people who could help me with my Apple. So we packed everything into the camper and headed out to San Bernardino.

Turns out that at least 90,000 other people had the same idea — to go camping out there for the weekend and see the shows. I couldn't imagine that a computer show would be so popular. Fortunately we had these gold cards that got us into a campsite real close to the middle of everything. It was hotter than walking barefoot down a tarred road in July, cause the place was in some hills on the edge of the desert. I found out that the computer tents were the only air conditioned spots in the whole place. Since that was what I wanted to see, I went over there first while Betsy-Ann took the rest of the family over to hear the music.

There was all kinds of odd things in the computer tents. Mostly there was lots of games. Uncle Zeb thought about gettin' a game for his store once, but we all decided that watching football on Zeb's TV was more fun and didn't use up quarters, besides. After lookin' at all the strange kids with long hair and almost nothing on playin' those games I figured that was the right thing to do, cause we don't want their kind down in Lizard Lick anyway.

Besides the games there was lots of strange goings-on. They had a trailer there from the State of California Office of Relevant Technology, whatever that means. Sounds to me like Jerry Brown's been smokin some of that funny tobacco too long, though everybody told me that's normal for him. Then there was this guy selling some new book with the most peculiar setup you could imagine. He had this 30-foot monster there with a whole bunch dressed up in space suits running around, while another whole bunch was dressed up like Scotsmen, with skirts and all, guarding this thing. They said they was all characters from the book. Must be a pretty strange book is all I could say something like "Outer Space Invades Scotland". Or vice versa.

A couple of real computer folks were there too. Commodore had a booth with a lot of their little machines there. They looked even simple enough for me, so I asked the folks there what they could do. First the guy showed me all kinds of games till I told him I don't play any. Then he started showing me a bunch of stuff that teaches you how to program. That was kind of interesting, but I can't even get my word processor to work right all the time, so I don't think I'll be interested in programming for a while. The Atari booth was kinda strange. They had computers all over the place, but no one around who would tell me anything about them. All the folks I saw were over in one corner talking to each other. I guess I couldn't blame them. I wouldn't want to spend a lot of time talking to some of them oddballs walking around that place.

After that I went over to the Apple booth where there was quite a crowd of folks standing around gawking at the computers and getting free Apple stickers. They must have given away lots of those things, cause I saw them all over the place later when I was walking around outside. Apple had guys using their computers to draw pictures and play fancy music. I hadn't known these things could do so much. But I was more interested in some of the other stuff they had going on. One guy was showing some programs for kids that use the Sesame Street characters. Maggie Sue always watches that show on TV, so I figured these folks must be on to something pretty good

The best news about the Apple part of the show was that I met this gal named Martha who could show me all about Applewriter. Like I said before, I've had lots of problems getting it to work right all the time. I guess some of it is because the manual is a bit confusing. Cause when Martha showed me all about the disk commands and the print commands it looked real easy. It sure helps when you can talk to somebody that



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knows all about it since I was kind of on my own down in Lizard Lick. But I found out that even I knew something about word processors when this guy in long hair walked up and asked how to play this game. Even I knew better than that! Martha was real nice; she started explaining what it really was. I would've just told the creep to get lost which wouldn't have been too smart cause he had lots of his friends there.

Well, they closed up the tents at six o'clock, so I figured I might just as well go out to try to find Betsy-Ann. I guess that was kind of dumb cause I didn't know what the crowd was like till I got there. I'd never seen so many folks in one place in all my born days. They said in the newspapers later that there was about 300,000 there which is almost as many as live in all of Charlotte. And almost all the women had next to nothin on because of the heat which was kind of embarrassing. Then this guy who called himself Fast Eddie came up and asked me if I knew of any available 16-year olds! It was enough to make a soul to feelin like a parson in what the Editor of this rag once called a House of Negotiable Affection. Which as I recall is how this all started.

Anyway, as quick as I could, I found a sort of quiet corner to look at the show. I said sort of since the speakers was so big there really wasn't *any* place that was real quiet. But leastways I found a place way up by the hill where there wasn't too many people. The music didn't turn out to be anything like what we listen to back home. It was all this rock and roll stuff that hardly made any sense at all. Sounded to me like a pig stuck under a fence. They sure wouldn't have anybody listening if they tried to play that kind of music right after the farm report on the radio in





the mornings. It don't help breakfast go down any, that's for sure. The crowd was cheering a lot so I guess they's kind of different.

The stage they had there was bigger than five barns put together. On both sides there were these two huge colored panels that they showed the laser lights on. That was quite something to see cause I don't think there's ever been a laser outside the University back in North Carolina. About 20 spotlights were lighting up the place, too, which was real pretty. Besides these big colored panels there where two huge projection screen TV's so you could see everything going on the stage. The screens were almost as big as the Apple balloon which was lit up right beside them.

I wasn't real interested in the pictures of the bands on the screens, cause I didn't like their music anyway. All I could see was a bunch of people jumping around with guitars, just like some of the late night music shows that I always turn off on my TV. Between bands, though, they had different stuff on there, including a broadcast from communist Russia. They also showed some pictures of the crowd from earlier in the day which I thought was kind of interesting til they showed a picture of Betsy-Ann. Seems they'd been spraying the crowd with water cannons to cool everybody off in the heat and they'd gotten her all wet. Well, she was wearing shorts and a tee-shirt and you know what happens to tee-shirts when they get all wet. And there she was, exposed like that and all looking like she was having a good time up on these screens in front of all these people! (Note: we have deleted certain of Mr. Fid's comments here as unsuitable for a family magazine. —PCW)

We had a few strong words when I finally caught her back at the camper and I told the Minister about it when we got back home so she's kind of mad at me now. Course I had to tell the boys at Uncle Zeb's about our trip but I left out the part about Betsy-Ann so don't tell them if you stop by. One thing's for sure: next year we're going to stay right here in Lizard Lick for Labor Day and do some right relaxin'.

Alan B. Fid is a forty-five year old tobacco farmer who lives in Lizard Lick, North Carolina. Alan won an Apple II in a contest two years ago run by his local radio station, WJHB-FM. He's been trying to figure out what to do with it ever since.

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Kids & The Apple is the name of this book and its game is to prepare your child, or any child, to take his or her place as a member of the computer generation. It teaches them the mysteries of the Apple computer in ways they'll love and enjoy. (Don't be surprised if you learn too.) Large 8 ½ by 11-inch book; can be opened flat. Second, there are 35 chapters, each one building upon the knowledge of the prior chapter - and it's loaded with cartoons which make a point as they amuse. Special sections for parents or teachers to work along with the kids, if they wish, and help them over any rough spots. \$19.95 at your local computer store or Datamost, 9748 Cozycroft Avenue, Chatsworth, CA 91311 (213) 709-1202.

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# IAC Streamlines Organization; Jerry Vitt Named President Ken Silverman is Executive Director

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The Board of Directors of the International Apple Core has named Southern

Region Director Jerry Vitt as President of the Apple computer user group federation. Former President Ken Silverman was simultaneously named to the new post of Executive Director, and will continue have operational responsibility for the IAC.

Jerry Vitt has the experience of 28 years in the computer business, as a manager and/or officer of several major corporations, including EDS, RCA, and Sperry Univac. He was a participant at the IAC first annual meeting in 1980, and was the group's first Board Chairman, serving two terms by re-election.

"I bring to this job a combination of a strong commitment to user groups and user education; experience in the techniques of getting things done; and a desire to open wider channels of communication with user groups. And by the way, that includes the user-dealer relationship as well." the new President said. Currently, Jerry heads a chain of computer and software stores in Texas; he is based in Dallas.

The 45-year old native of Dayton, Ohio holds degrees in Data Processing and Management from the University of Cincinnati.

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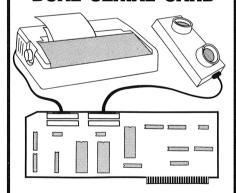
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20 PRINT: PRINT: "YES,
) JANET... AND ONE COMES":
FOR X=1 TO 4: ELASH: PRINT:
MIDS("PREE"; X 1);
CHRS(7):: NEXT: PRINT: "WITH EVERY
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for Apple Mechanic

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Unprotected, Beagle Bros' Apple Mechanic disk is required to utilize the type fonts. Beagle-Menu works with all normal-DOS 3.3 disks.

# Flex Tex

70-Column Text Utility by Mark Simonsen

Flex Text is a unique utility that lets you print variable-width text on Apple's hi-res screens in normal 40-column format, 20column expanded or 56- and 70-column condensed characters. Character widths may be mixed as you like for emphasis. Flex Text understands normal Applesoft Basic commands, including Home, Inverse, Normal. Vtab 1-24 and Htab 1 through 70! It also supports text window pokes and scrolling, so you can program normally, but with the ability to add text to graphics, or graphics to text! You can even run your existing programs using these features!

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SIZE=5: SCALE=SIZE: REM NUMBER-HEIGHT HGR: HOME: POKE 232. 0: POKE 233. 3: ROT=0 FOR A=768 TO 830: READ B: POKE A, B: NEXT A

N=N+1: NS=STRS(N): X=99: Y=0 FOR A=1 TO LEN(NS): HCOLOR=0: DRAW 8 AT X, Y: HCOLOR=3: DRAW VAL(MIDS(NS, A, 1)) AT X, Y: X=X+SIZE+SIZE: NEXT A: GOTO 50

A1 A, 1: X=X+3LE+3LE: NEX1 A: GOIO 50 DATA 20, 0, 24, 0, 27, 0, 31, 0, 35, 0, 39, 0, 44, 0, 49, 0, 52, 0, 57, 0, 53, 62, 36, 0, 49, 38, 0, 53, 55, 61, 0, 53, 23, 37, 0 DATA 46, 38, 52, 0, 61, 46, 62, 5, 0, 61, 54, 37, 7, 0, 53, 38, 0, 54, 37, 60, 46, 0, 53, 39, 53, 62, 5, 0

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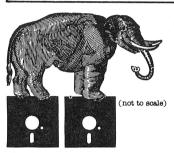
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# CONTROL YOUR INPUT

# by Richard Loggins

After taking the big step and trading in my Apple II for an Apple ///, I figured the best way to learn the new Business BASIC would be to convert an input sub-routine I use in virtually all of my programs.

I wanted to try to take advantage of some of the more sophisticated capabilities of Business BASIC, namely the "ifthen-else" and the eighty column monitor.

Little did I know how many hours would be spent learning the basics of the machine before any type of programming could be accomplished. For some, the transition from an Apple II to an Apple /// is probably quite simple, but not so for me. During this process I discovered some features I thought were excellent, as well as some I feel could be improved.

On the bad side, you must have a good supply of formatted disks before you start programming anything, or you're inviting disaster. You can't initialize a disk from BASIC - only from the System Utilities Disk. Which means the first thing you have to do is learn about the System Utilities. Bear in mind, I'm the type who only reads the instructions after all else fails. But in this case, I strongly advise anyone to read the instructions first — before everything fails.

Perhaps the first thing you'll notice when you start programming on the /// is the total lack of any programming aids. No PLE, Apple Doc, CRAE, or any of the others. The best I could come up with was Apple Writer /// which, by the way, is an excellent word processing package.

Once I learned the basics of using it, it was fairly simple to write the sub-routine, save it on disk, then EXEC it into memory and save it on a regular disk. A long way from here to there.

Before I get into the actual sub-routine, I thought I might pass along a tidbit of information that might keep someone else from going bonkers. There is an error code that can appear in Business BASIC that isn't documented. I encountered an "Error Code 39" while writing out a text file under program control. Nowhere in the manual is this code listed. The program is short (approximately 6K), and isn't doing anything

After many hours reading and trying different things. I can now tell you (with a bit of confidence) that Error Code 39 means "Directory Full". Don't confuse the main directory with a sub-directory. A sub-directory can hold upwards of 1600 filenames. The main directory can only hold 51. Why, I don't know. This can be a bit confusing, as a catalog of the disk can show 222 blocks free and still not let you write or save any new files on the disk. Just thought I'd pass it on.

On to the actual sub-routine. The sub-routine can be called from anywhere in the program, and allows the programmer to control the user's input. It requires only four variables to place limitations on the maximum and minimum lengths of the users input, as well as placing it anywhere on the monitor. You can add an optional fifth variable that will allow the user to exit from any input and return to a specified area of the program. say the main menu. It also provides the user with a visual indication of how long his input can be.

The four variables that must be initialized in the main program prior to calling the sub-routine are V1, H1, X1, X2 and optionally RT. V1 specifies the horizontal starting location, which is where the first character will appear. X1 and X2 specify the maximum and minimum allowable lengths of the input. If you are going to use the "Escape" option, you must include the variable RT. RT sets up the number of "POPs" to be performed prior to branching to the new portion of the program. Another way to say it is that the variable RT contains the number of levels the sub-routine is nested. If you are calling the sub-routine from another sub-routine, RT would equal 2. This maintains the stack to insure the program goes where it is supposed to when it encounters a RETURN statement.

# The Sub-Routine:

```
4000
         VPOS=V1: HPOS=H1: H2=H1: X3=Ø: H4=H2→1: Y$=""
         FOR H3=1 TO X1-X3: H4=H4+1: HPOS=H4: PRINT"_";: NEXT H3:
 4010
HPOS=H2
 4020
         GET X$: IF X$=CHR$(27) THEN 4080:
         ELSE IF X$=CHR$(13) THEN 4050:
         ELSE IF X$=CHR$(8) THEN 4060
 4030
         IF ASC(X$)<32 THEN 4020: ELSE IF X3=X1 THEN 4020
         Y$=Y$+X$: PRINT X$;: H2=H2+1: X3=X3+1: HPOS=H2: GOTO 4020 IF X3<X2 THEN 4020: ELSE RETURN IF X3=0 THEN HPOS=H1: Y$="": GOTO 4020:
 4040
 4050
 4060
         ELSE IF X3=1 THEN X3=0: Y$="": HPOS=H1:
PRINT" ";: H2=H1: HPOS=H2: GOTO 4020
X3=X3-1: Y$=LEFT$ (Y$, X3): H2=H2-1: HPOS=H2:
PRINT" ";: HPOS=H2: GOTO 4020
 4070
         IF RT=\overline{\emptyset} THEN 300: ELSE IF RT=1 THEN POP: GOTO 300:
 4080
         ELSE IF RT=2 THEN POP: POP: GOTO 300:
         ELSE IF RT=3 THEN POP: POP: POP: GOTO 300
 4090
         PRINT DING$; DING$; DING$; DING$; DING$: GOTO 300
```

# Line Description

4000 Initializes the vertical and horizontal position. Sets Y\$ to null, and character counter X3 to 0.

4010 Draws the 'Data Input Line'.

4020 Gets a character from the console. Checks to see if the <ESCAPE>, <RETURN>, or <BACKSPACE> keys have been pressed (respectively), and if so branches to the appropriate line number.

4030 Checks to make sure a valid key was pressed. If not, ignores the key and goes back for another one. If a valid key, then checks to see if the maximum length has been reached. If so, ignores the key.

4040 Concatenates Y\$ and X\$, prints the key pressed, increments the horizontal position, increments the string length counter, and goes back for another key.

4050 Checks to see if the minumum length requirement is met. If so, returns to main program, else goes back for another key.

Checks to see if any valid keys have been 4060 pressed. If not, resets counter, Y\$, and horizontal position to original values and returns for another key.

4070 If a valid entry has been make, deletes the last character contained in Y\$. Replaces the last character on the monitor with an underscore, decrements the length counter and the horizontal position.

Escape key handling routine. Executes the 4080 number of 'POPs' as specified by the variable RT, and branches to wherever you wish to

send it. In this case, line 300.

4090 Safety net in case you forget to set RT. Assuming you set bell five times to let you know you goofed, then will branch to line 300.

# Variable Description

V1 — Vertical Position on monitor.

H1 — Horizontal starting location on monitor.

H2 — Temporary horizontal location on monitor.

H3 — Temporary counter for drawing "Data Entry Line."

H4 — Temporary horizontal location for drawing "Data Entry Line"

RT — Number of "POPs" to execute if <ESCAPE> is pressed.

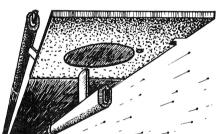
X\$ — Last character pressed on console.

X1 — Maximum allowable input length.

X2 — Minimum allowable input length.



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# The RENUMBER Fix

# by Cornelis Bongers

Courtesy of Call - A.P.P.L.E.

Recently, Ernest E. Simard II reported a bug in the RENUM-BER utility provided on the APPLE 3.3 Master diskette (see CALL - A.P.P.L.E., Vol IV, Number 6, p. 70). The same bug was also mentioned by E.B. Buchanan (see Creative Computing, Vol 7, No 10, letters to the editor). Apparently, the bug may cause problems if a program is renumbered in which the '\*' symbol occurs followed by a number. This number will sometimes be changed to another number which may equal the line number.

The fix for this bug is:

- LOAD RENUMBER
- Enter monitor command level (CALL 151)
- Type 12B6:B0 AC C4 BC
- 4. Return to BASIC (3D0G)
- SAVE RENUMBER

I could leave it at that, but some readers might be interested to hear about a useful procedure that can be applied to find bugs in a not self-written machine language program.

There are several methods to attack a bug. First, you can make a printout of the program (RENUMBER occupies 2K of memory) and find out how it works. Eventually, you will encounter the bug, but probably it will cost you several days.

A more attractive method is: use all the available information to trace back in what part of the program something goes wrong. At this stage, don't look into the program code, but try to imagine how the program is most probably built up. Usually. a program consists of several subroutines and data areas. Place yourself in the position of the programmer who wrote the program and think what subroutines you would write and what data areas you would need.

Next, set up a hypothesis about the cause of the error and try to imagine in which subroutine or data area such an error might occur. Try also to get some confirmation of your hypothesis, for instance, by running the program with some carefully chosen input sets. Finally, search in the program code for the subroutine or data area which causes the problems to see if your hypothesis is correct. I am perfectly aware of the fact that all this sounds a bit unrealistic, but I can assure you that the method works on many occasions. It also worked in locating the RENUMBER bug as will be outlined below.

To begin with, it seems logical to assume that (the relevant part of) the renumber process works as follows:

Start at begin of next line 2. Search the line for keywords (represented by tokens) that might be followed by line numbers. According to the APPLESOFT reference manual, these keywords are DEL, GOTO, RUN, GOSUB, LIST and THEN. The corresponding tokens are respectively, 85, AB, AC, B0. BC and C4.

- 3. If the line contains none of these tokens go to step 1.
- If one of the tokens is found, check whether it is followed by a (line) number and process it if so. Next, continue the search in step 2.

Next, we must use the available information which is that a '\*' symbol followed by a number may cause an adjustment of that number. Some experimentationn with RENUMBER showed that this is not a random adjustment but a very specific one. Numbers following a '\*' symbol are namely consistently treated as line numbers. Note that line numbers that are 'out of range' will not be affected by RENUMBER. This appeared also to be the case if the number behind a '\*' did not equal one of the line numbers, which explained why the error occurs only sometimes.

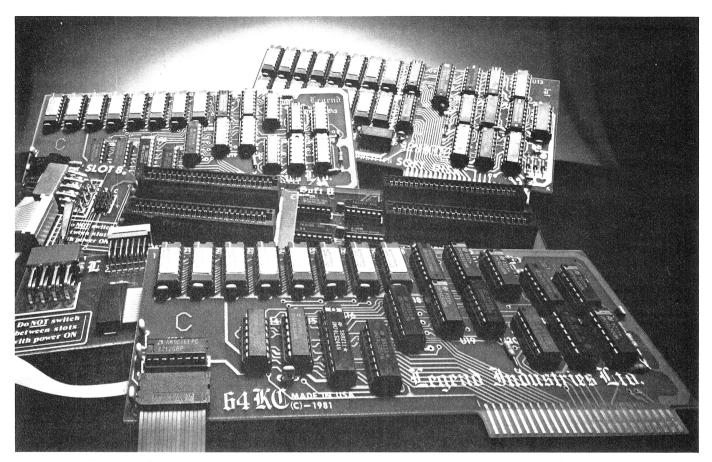
Hence, a reasonable hypothesis seems to be that the token for '\*' is somehow accidentally interchanged with one of the tokens for the keywords mentioned in step 2 above. However, if this is true, it means that RENUMBER must refuse to renumber line numbers following one of the keywords mentioned in step 2. I found out which keyword this was by renumbering (note: not RUNNING) the following 'program':

- **DEL 2.3**
- GOTO 1 2.
- RUN 2 3.
- 4. GOSUB 1
- LAST 1,2 5.
- THEN 5

After the & command, line 5 became, 50 LIST 1,2, so clearly it must be the token for LIST that is interchanged with the token for '\*'. Note that the presence of a 'disabled' keyword gives a strong confirmation of the hypothesis. Next, I loaded RENUMBER once again and entered monitor command level. It seemed reasonable to assume that the tokens mentioned in step 2 are somewhere stored in a table. So I wrote a simple search routine to locate a single byte in a given range of memory. First, I tried 85 (the token for DEL) but this byte occured too frequently. This was also the case for AB (GOTO), but AC (RUN) occured 2 times only, so I readily found out that the table starts at \$12B4. However, to my great surprise, I saw that the whole table appeared to be in order since all the right tokens were present.

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At this point, I found myself in a rather confusing situation since it seemed very improbable that the error was not caused by a wrong table relocated (to just below HIMEM) and furthermore, I remembered that the relocation routine of RENUMBER does not always work correctly (see Loading DOS 3.3 on the Language Card, CALL - APPLE, Vol IV, number 6). So rather than looking to the values in the table, it might be more useful to look to the disassembly of the table, which is listed below.

12B4:85	AB		STA	\$AB
12B6:AC	B0	BC	LDY	\$BCB0
12B9:C4	00		CPY	\$00

The values AC, B0 and BC are data (tokens). But if the data areas are not properly defined, a relocation routine may interpret some data as instructions. This proved indeed to be the case. The LDY \$BCB0 instruction is actually processed by the relocation routine and it will be changed to LDY \$CABO. (CA is the token for '\*'). The fix consists of removing the LDY instruction by interchanging several tokens. After the interchange, the disassembly gives the result:

12B4:85	AB	STA	\$AB
12B6:B0	AC	BCS	\$1264
12B8 · C4	RC.	CPY	\$BC

To my knowledge, the interchanging of tokens has no effect on the operation of RENUMBER. However, as will be apparant from the foregoing, I have not delved very deeply in the RENUMBER program itself, so if you find side effects, I would appreciate being informed.

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Print string
Print w/o word break

Remove characters Restore special data Search string array Speed up Applesoft Speed restore Store 2-byte values Swap variables

These routines and more can be attached and accessed easily. For example, to allow typing of commas and colons in a response (not normally allowed in Applesoft), you simply attach the Input Anything routine and put this line in your program:

XXX PRINT "PLEASE ENTER THE DATE. "; : & INPUT, DATE\$

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by Peter Clarke and Rik Anderson from *The Harvest* Northern Illinois Apple Users Group

One good thing about the public domain software developed by Apple user group members is that one good program quite often leads to a better one; and there is surprisingly little resentment about such improvements on the part of the original author. Example: the "Marquee" progam. One good idea, that of Peter Clarke, was improved upon by Rik Anderson.

In the original marquee, the "stars" all moved from right to left. The later version reproduced here has "lights" moving in all directions, around the sign. B\$ is the top line, C\$ the bottom line. Line 1111 "reverses" the direction of C\$. V\$ is the string used for the sides. Z\$ is the fixed string of stars for the top and bottom of the frame around which the moving stars flow.

Now . . . after you enter this program and try it, what can you get it to do? Maybe a different set of characters, different pattern . . . who knows? Two things will happen; as you puzzle it out, you'll become more familiar with screen formatting and strings, and we'll likely receive more ornate and elaborate marquee programs, or other types of graphic displays.



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```
1000
      REM
          MARQUEE
1010
      REM
          APPLE ORCHARD, 82-1
1020
           FROM THE HARVEST
      REM
1100
     HOME
1101 AS = ".....HERE IS A MARQUEE ON WHI
CH THE 'LIGHTS' GO AROUND THE SIGN....AD
APTED FROM A PROGRAM BY PETER CLARKE, MO
DIFIED BY RIK ANDERSON"
1102 \text{ B$} = "
               ****
                               ****
***
       ****
               ****
                       ****
                               ****
1103 ZS = "*******************
******
     REM 38 STARS
1104
1105 C$ = B$:V$ = "*
                        ***"
1107
     VTAB 23: HTAB 6
1108
     PRINT "PRESS ANY KEY TO STOP MAROU
EE"
1110 V$ = MID$ (V$,2) + LEFT$ (V$,1):A
$ = MID$ (A$,2) + LEFT$ (A$,1):B$ = M
IDS (BS,2) + LEFTS (BS,1)
1111 C$ = MID$ (C$,8) + LEFT$ (C$,7)
1120
     VTAB 8: HTAB 1
1121
     PRINT LEFTS (BS. 40)
1122
     VTAB 9: HTAB 1
1123
     PRINT MID$ (V$,1,1);Z$;"*"; MID$
(V\$,1,1)
1124
     VTAB 10: HTAB 1
     PRINT MID$ (V$,8,1); "*" SPC( 36);
"*"; MID$ (V$,2,1)
1126
     VTAB 11: HTAB 1
1127
     PRINT MID$ (V$,7,1);"* "; LEFT$ (
A$,34); " *"; MID$ (V$,3,1)
1128
     VTAB 12: HTAB 1
     PRINT MID$ (V$,6,1);"*" SPC(36);
"*"; MID$ (V$,4,1)
     VTAB 13: HTAB 1
1130
1131 PRINT MID$ (V$,5,1);Z$;"*"; MID$
(V\$, 5, 1)
1132
     VTAB 14: HTAB 1
1133 PRINT LEFT$ (C$,40)
1140 X = PEEK (-16384): IF X > 127 TH
   POKE - 16368,0: GOTO 1180
1150
     GOTO 1110
1180
      TEXT : HOME : END
```

# APPLE GROWERS.

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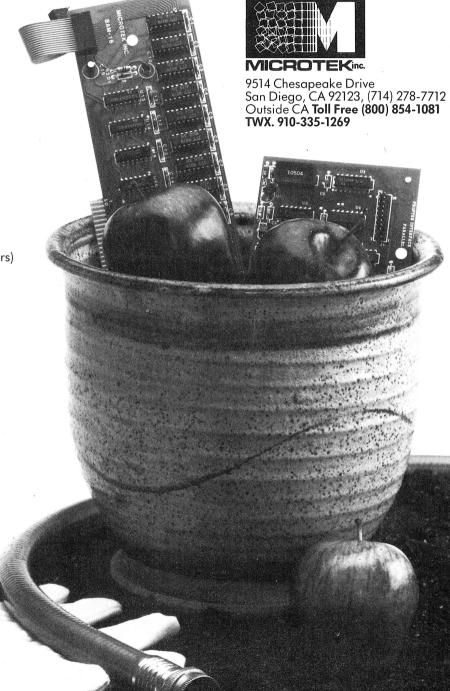
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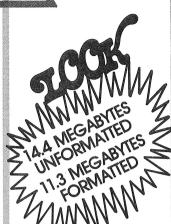
BAM-128 or Q-DISC.

Q-DISC

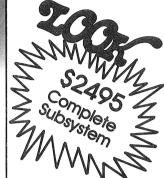
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The Rom-resident software interfaces to DOS 3.3, Apple Pascal (optional) and CP/M (optional). All operating systems remain unmodified so there is no need to change anything in your programs to use the Gallium-10.

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DISKS Number	25/13.33
PERFORMANCE Access Time Track To Track (3 milliseconds Disk Rotational Speed	600 rpm

UTILITIES	
Format	Formats All Surfaces
	itializes With An "EMPTY" File Given Number Of Volumes
File Finder	Finds All Volumes On Which Any Given File Is Resident
File Runner	Finds & Runs The Given File From The First Volume On Which It Is Resident
PartitionPa	rtitions The Disk For DOS 3.3,

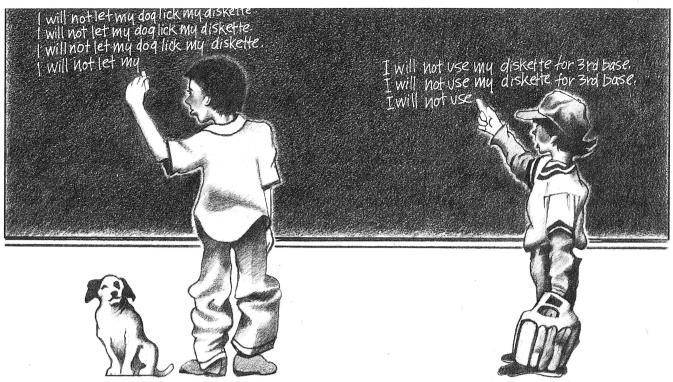
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# To punish or not to punish . . .

If detention was made the "industry standard" punishment for mishandling diskettes, there would be a lot of adult computer professionals staying after work. Any way you look at it, bad disk care is expensive. Floppy diskettes are expensive from the start, and their value grows as information is added to them. Disk drive problems can make your computer expensive in maintenance and loss of valuable programs.

Alternatives. There is now a way to network Apple ][ computers so that the only workstation requiring a drive can be placed on the instructor's desk. Networking has long been a term associated with very large and advanced computer systems. The term refers to the interconnection of multiple display terminals to a central intelligence or host. These same features are now scaled down to the personal computer level.

At a cost way below that of individual disk drives, the Remote Operating System from Softworks allows up to 127 users to utilize disk storage from one central computer. The central Apple can accommodate from one to eight floppy diskette drives, or various popular hard disk drives made for the Apple.

For the Instructor, life is made easier by allowing all system utilities and configurations to be performed from the central computer. You can simply use the central Apple and its disk storage to handle all requirements for loading, saving and running programs. Running only one diskette provides more program control as compared to loading multiple copies into each separate system. And your main Apple can either monitor activity, or be cleared for normal operation with two keystrokes.

The central computer contains a  $3'' \times 5''$  circuit card through which the Remote Operating System is loaded and transferred to the remotes. The remotes, each containing a Remote Circuit card, are connected to the central Apple in a daisy chain via cables.

For the Student, remote computers have access to Applesoft, Logo, Machine Languages, Integer programs and data files at the central computer using standard DOS commands. Soon the popular languages of CP/M®, Pascal and FORTH will also be added.

Logging on to the remote system requires entering a User Password which enables access to the network, determines what part of the system's data storage will be available to that station, and triggers a Turnkey Command which automatically runs the first program. Simultaneous access attempts are handled by a wait mode until the disk becomes available, or the user cancels his command.

Students enjoy full access to standard DOS commands (with the exception of INIT) plus additional commands and utilities unique to ROS:

- FEED for mass loading one program to multiple remotes simultaneously.
- A simulated "in-use light" signals disk activity or wait mode status so the user can tell what is happening even when the disk drive is out of sight.
- All standard DOS error messages and recovery are implemented plus special messages unique to the network.
- A system utility program called SPEED which makes access to data on floppy diskettes almost as fast as a hard disk. This also reduces wear and tear on fragile disk drives.

For everyone, set-up software is provided with the system software. Among the other advantages are that the future expansion of system capabilities can be made through software only, and that printer output is not restricted to the host Apple, but rather is available from both the central and remote computer.



For more information, call or write: Softworks, 7741 E. Gray Rd., Suite 4, Scottsdale, AZ 85260, (602) 998-3986, or see your local Apple dealer.

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# Call (312) 295 - 6926

# The IAC's new People's Message System is here!

# by Dave Alpert and Bill Blue

The International Apple Core is now operating a People's Message System. This is a modem communications package developed by the talented author of ASCII Express, Bill Blue. As its' name indicates, this system is intended to allow callers to leave and retrieve messages to each other.

But that's only the tip of the iceberg. There are many other features available on this system.

Downloading programs to your computer is available under several different modes. After choosing GENERAL from the Command line, you are given a choice of Program 14 or Program 15. 14 is the Download program and 15 is the Upload program. Once you are in Download, you may have the PMS send a program to your terminal program so that your program may capture it. Also, programs may be downloaded directly to your computer if you have called directly from the Apple keyboard. The system will send the correct protocol and then send the file to memory. All you have to do is save it as if you had keyed it in yourself.

You may also send programs to the PMS so we may put them up for others to download. This usually requires some software on your end. However, the procedure is easy, and PMS explains how to do it when you enter the Upload mode. Just ask for instructions after choosing Program 15.

Many Features are available on the PMS. They may be read from the screen, downloaded and captured on your end, or directed to your printer. The access to these Features is to enter their name at the Command level. A list of Features is available by entering an F at the Command level.

Messages left on the system contain items for sale, messages between callers, messages to the IAC, messages asking for help with certain problems, and messages of general interest, to name a few. Messages to Sysop (system operator) may be left on the message board or left in Comments after doing a G to exit. Private messages are also available to those who want their message to be read by only the person to whom it is addressed.

USERIDs are available to frequent callers. Since there is only a limited number of IDs available, Sysop will have to limit IDs to those who call often. Requests for IDs should be made in the comments after signing off and should contain your name, city, state and phone number. Also, you must leave a four letter code that will be part of your ID. Choose any combination that does not begin with a number. Leave that as part of your comment to Sysop and make a note of that combination. A private message to you will give you a three number code. Add your chosen four letter code to the end of the number to get your USERID and enter that when prompted the next time you call.

If you enter an O at the Command level, you'll see a list of other systems, their locations and their phone numbers. This list is actually a reprint of the list maintained on Bill Blue's PMS from Santee, Ca. If you know of any changes that should be made to the list, you may leave a message on PMS-IAC or call PMS-Santee at 714-561-7277.

When calling, please note that you must enter a «RETURN» just after connection in order to activate the PMS. You then must enter either a USERID password or an N if you don't have a password.

Here is a description of many of the commands available on the system.

# System Control Functions and Codes

Certain characters cause specific functions to occur while the system is printing to you. (NOT when waiting for input.) These may be control, lower or upper case characters.

- C Stops printing the current line up to carriage return. Use this if you want to skip over several lines of text with out aborting the function. Use one 'C' for each line you want to jump over.
- K Causes a jump to the next logical operation. As an example, if you were retrieving several messages, it would cause a jump to the next message. During message entry listing, will return you to the message entry entry command level. The ONLY time this command will return to to main COMMAND level is if there is no logical next function. It can also be used to cancel the bulletins at sign-on, and jump directly to the message alert routine. (Two K's during bulletins would cancel bulletins and message alert and go right to COMMAND.
- Adds two nulls for each N typed. Use this when you have a printer online, which needs nulls (is dropping first characters of lines). May be used at any time in system operation. Another Use of this function would be to slow down a Scan or Quickscan if you are having trouble keeping up with it. See also
- P Cancels nulls to zero. Regardless of current null setting, resets nulls to zero. You can then add again with N if you wish.
- R Flags messages during a scan or quickscan to be later retrieved with the \* command. Type an Rat the NEXT message header. It will always be one message behind. There is usually not time to comprehend a message header and type the R before that header is done being printed. So just pause slightly and then type it. At the end of that next header, you will get verification and number of the message flagged.
- Stops text output until any other character is sent.
- X This one causes an unconditional abort of whatever function you're in, and an immediate jump to main COMMAND level.

# System Commands

All system commands are input to the main COMMAND level. Certain commands, H,K,R and S may also have extenders desribing or anticipating the next question asked. As an example: Since H is for help, if you wanted help on everything, you could type H;ALL. Using R as another example, if you wanted to retrieve message #1937 you could type R;1937 etc. More examples of various multiple parameters are explained for each individual command.

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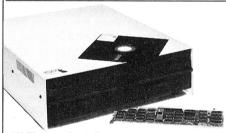
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Up to 2.2 megabytes of on-line storage with two double-sided, double-density 8" floppies (1.1 megabytes with single-sided drives). DOS 3.3 capabilities are supported. Interface plugs into any Apple I/O slot (except 0).

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Optional Pascal software lets you store the entire Apple Pascal system on one side of one 8" disk—with lots of room left for program files.

TWO SINGLE-SIDED DRIVES Model 8202CA TWO DOUBLE-SIDED DRIVES Model 5202CA

\$1625.00 \$1925.00

## **Winchester Disk Systems**

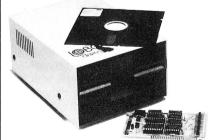
Programs that make heavy use of disk files will get a spectacular performance boost when you plug in up to 8 megabytes of ultrafast hard disk storage. And imagine the convenience of having all your program and data files immediately available whenever you boot the sytem.

IMPORTANT: many hard disk systems now being sold have no provision for backing up the disk (using standard Apple minifloppies, you'd need about three dozen diskettes to completely back up a 5 MB drive!). Lobo hard disk systems come with a built-in double-sided, quad-density floppy drive that can store the complete contents of the hard disk on six or seven floppies. This floppy drive also adds the equivalent of at least 5 more Apple disk drives to your total on-line storage!



51/4" SYSTEM: ONE 5MB HARD DISK PLUS ONE 737 kB FLOPPY Model 950A \$2675.00 8" SYSTEM: ONE 8 MB HARD DISK PLUS ONE 1.2 MB FLOPPY Model 1850A \$3459.00

Both include Lobo DMA interface usable in Apple slot 1-7 and DOS 3.3 patches. CP/M optional (see below).



# **Apple-Compatible Minifloppy Systems**

Both the disk drive and the interface card are functionally identical and plug-compatible with Apple Disk II equipment. Lobo and Apple drives may be freely mixed on a Lobo or Apple interface card, and the Lobo interface features a switch to select 13 or 16 sector boot. The only other difference is the price and Lobo's unique 1-year guarantee!

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\$455.00 \$385.00

## Software and Accessories

All Lobo disk systems come complete with interface card and any necessary patches to DOS 3.3. Use of Apple Pascal with Lobo 8" floppy drives requires the Lobo Pascal Creator disk and documentation.

Running CP/M with Lobo Winchester or 8" floppy systems requires a Microsoft SoftCard, an Apple Language card (or Microsoft RAM Card or equivalent), and the Lobo CP/M disk. Pascal is not currently supported on Lobo Winchester systems.

### **Ordering Information**

All prices include shipping and handling. California residents add 6% sales tax. Credit card orders shipped within 24 hours. Personal checks require 2-3 weeks for clearance before shipment. Please allow up to 6 weeks for delivery.

### The Lobo Warranty

All Lobo hardware products carry a limited 1-year parts and labor warranty. Call or write for complete warranty statement.

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- B Reprints the bulletins that are displayed when you first sign on to the system.
- E Enter a message into the system. Pretty self explanatory. just follow the prompting. You must enter a password when asked. This is the password used to kill the message. There are also two levels of security messages available. If you type LOCK as your password (you will be asked again for the password for killing), the message will be marked as private, and will automatically open for the person to whom its addressed or to who wrote it. Others will be asked for a password which will be the same as the password for killing it. If you enter LOCX instead of LOCK, the message can be read ONLY with the password.
- F Features. Articles of interest.
- **G** Goodbye. Exit the system and hang up the phone. Files will be updated at this time. System will also respond to: END, OFF, BYE and a few others. Comments can be left or type R to return to PMS program.
- H System help files. Typing an H by itself will print out all the possible areas you obtain help for. Typing H;(character) will print help on a specific function.
- K Kill a message. This will remove a message from the system files. You must have the password (entered during message entry) to use this. You also have the option of automatically killing messages that are addressed to you at the time you read them. See more details in R command.
- M Message alert. This command is issued automatically directly after the bulletins when you sign on. It allows you to automatically retrieve all messages addressed to you. You may use it at any time in the program. One word of caution: If you have flagged messages for retrieval and use this command all the flagged messages will be lost. If you do use it, and did not retrieve all the messages to you, you can continue with the \* command. (Same as flagged retrieval)
- N News. Display system news, highlights.
- O Other systems list. Updated regularly, contains a summary of all known public access message systems of all types, in alphabetical order. Can also be printer formatted. You can specify a string to look for within this file by typing O; search, where search is the area code, or system name you are looking for. All lines containing appropriate information will be displayed.
- Q Quickscan of message headers. Not that much quicker. See also, S.
- R Retrieve a message from the files. There are several modes here. You can select messages singly, or in multiples. Examples of entries: R;381 or R381;560; etc. To retrieve all messages starting from a certain point, type: R;555 or R;1010+. See also the \* command for flagged messages.

When you retrieve a message that is addressed to you, at the end of it, you'll drop to a secondary level with the option 'Kill this message (y/n/a/u)'. Y means YES, Kill the message. N means NO, don't kill it. A means read it AGAIN and U means to Unmark it. Unmarking a message removes it from your message alert section, but leaves it for others to read. You would use this if you wanted to leave a message containing information for others to read. You can not, however, Unmark a private message, as others could not read it anyway!

You will then be asked if you have a reply. If you do, answer 'Yes', otherwise answer 'No'. The automatic reply does some of the busywork for you (To: From: etc.) and upon completion of the reply and saving the message, will continue with retrieving other messages you may have specified. During auto-reply, if

- you enter a «RETURN» only in response to Reply, if you enter another «RETURN» in response to Subject, it will take the subject of the message that was to you and add a r/ to it, meaning reply to the previous message and append the subject of the message to you to the r/ in the message you are then sending.
- S Scan message headers. Here you can specify a starting message number to start the scan. S;500 would scan starting at message 500 or the next highest if there is no message 500. You can also scan in reverse order by either specifying a number >= the highest message number, or by adding a ' (minus) sign directly after the message number.

Examples: S;500 S1200 S;1040- etc. As you are scanning you use R to flag messages you want to read later with the command. See '\*'.

- SR Selective retrieval. Use this command to retrieve all messages whose headers contain data you are looking for. As an example, if you entered "FOR SALE", it would automatically retrieve all messages with "FOR SALE" in the header. This will work for ALL aspects of the header. FROM, TO, DATE, SUBJECT and LOCATION. All messages that meet these parameters are put in flagged memory and automatically retrieved. If there are no matches, it will tell you.
- Prints current local time and date, and the length of time since you logged on.
- User modifiable functions. These are parameters which affect certain default conditions of the system. You modify them to your current needs.
- A) Apple 40 mode. Toggles between 40 and 64 column message entry mode. Does not affect text output.
- C) Case switch. Toggles between upper only and upper/ lower text output. Lower case text is accepted during message entry and comments in either mode.
- CS) Clear screen. Allows setting the character or sequence of characters that will cause the local terminal to clear the screen. In this mode, after each message has been displayed, the string 'more---' will display. The system will sit there and wait for a response from you. This is to keep the screen from clearing before you want to temporarily remove this option for the retreival of a particular string of messages (say for printing them) you can type the letter 'N' at 'more---'. If you wish to abort the string of messages altogether, you can type 'K' or 'X'. You can the continue with a '\*'.
- D) Duplex switch. Toggles between full (echo) and half (no echo) duplex modes.
- L) Line feed switch. Turns linefeeds on or off. System default when you call, is on.
- N) Nulls. Displays the current number of nulls in in effect, and allows you to modify them directly.
- P) Prompt. Allows you to change the current system prompt, which is usually a (?) question mark. Here you can enter either the character you want the prompt to be, or the ASCII value of it. The prompt will stay defined as such through all system functions, until you change it again, or hang up. This feature can be used to good advantage with automatic upload or download programs. (automatic message entry, etc.)
- T) Term video/printer mode toggle. In the video mode, recognizes Ctrl-H (backspace), delete (underscore) and rubout (ASCII 08, 95 and 127 respectively) as backspace characters and echoes backspace-space-backspace as destructive backspace. In the printer mode, the same characters are recognized, but during the backspacing additional reverse slashes and the characters being backspaced over will appear in reverse order.

PAR) Parity. Allows you to modify the word length, parity, and number of stop bits employed. Displays a little chart with 8 positions. One of them will have a circumflex ( ) under it, indicating the current system default at that time. Examples of numbers could be: 7E1 or 8N2 etc. 7E1 means 7 bit word, even parity and 1 stop bit, 8N2 would mean 8 bit word, No parity and 2 stop bits etc. Enter the postion number 1-8 of the mode you need to use.

STAT) Displays current system status of all the modes covered by the U function, so you can see your current setup.

- X eXpert user mode. System default is on. Does away with the additional prompting at command level, the pausing between messages during a multiple retrieval and allows certain other privileges. However, when clear screen option is in effect (U;CS), the pausing between messages will return.
- Z Allows you to resume entering a message after you have aborted it. Let's say you were entering a message and realized you had forgotten something relevant to that message, and needed to reread an earlier message or article. You can abort the message, reread other messages or articles and then reenter your message with all data intact, and continue. Should you be disconnected while entering a message, and you are the very next caller back, the system will ask if you want to continue the message. Answering yes will list the message so far and allow you to pick up from there. If you were in the abort when carrier was lost and call right back, the system will not ask about continuing the message, but you can, with the 'Z' command. Also your flagged messages will be preserved if losing carrier occurs during flagged retrieval. Just continue with \*.
- Prints a list of all available commands available at your current mode of operation.
- Retrieve messages in flagged memory. This can be messages flagged during a scan or using the M or SR function. You may pick up where you left off with this command, if you ended your retrieval for any reason. Using this command with scanning messages, (such as S;1000\*) will clear the flagged memory completely for starting fresh.

Those callers with USERIDs will be able to retain various parameters of their last visit to the system automatically. All parameters set by U;STAT except nulls are retained in the USERID system plus the highest message number of each visit. After logging in, if you would like to scan messages starting from the highest of the last visit, type **S**;!. If you would rather just retrieve all those messages, type R:!. If you do not access S:! or R:!, your message marker will not be updated.

# Message Entry Commands

Note: all the following commands can be issued as DOT commands. A dot command may be entered as '.A' or '.E'or whatever the desired command is, as long as the dot is the first character of a given text line. This can be done throughout message entry.

- A Abort message and return to command level. You may continue your message with the Z command.
- Continue with message entry. Allows you to continue your message at whatever the next line in succesion would be.
- D Delete a line. Specify the number of the line you wish to delete. D; x and Dx are legal here. (x = line number)
- Edit or retype a message line. (Ex or E;x also legal). To replace the line, just enter the new line. Editing a line is accomplished by specifying a string you want to replace with what you want to replace it with, in this form: OLD/NEW with old and new string separated by a slash. You can also use three slashes as in the old editing routine: /OLD/NEW/. To remove a

section of text type: OLD// or /OLD//. To insert text at the beginning of a line type: <THIS IS NEW TEXT. The left arrow means insert at the beginning. To append text at the end of a line type: >THIS IS NEW TEXT. The right arrow means append to the end. If you type a Ctrl-S (Control-S only) as the first character of the line, the contents of the line will be automatically centered. If you are modifying an existing line and just type a Ctrl-S by itself, whatever is already on that line will be centered. Control-S as the first character of a line will also work during regular line entry (not just during edit).

One eccentricity of this type of editing is that the '/' character cannot be contained within the text you are actually editing. It would be necessary to retype the new line up to the '/' and append ('>') to the end of that new section.

Should the line you are editing get mangled beyond recognition, you can type '!' on the line by itself, and the original line will be reinstated as it was when you first started the edit.

- I Insert a line. (Ix or I;x also legal) Allows you to insert a line directly BEFORE whatever line number you specify.
- Save the completed masterpiece to disk. You MUST use this command for your message to be saved!
- reWrite an old message. Using this command, you can kill an older message (with the correct password, of course) with the contents of it appearing in the message you are currently entering. The old message lines will be appended to your current position in the message. As an example, if you were at line 10 of a message, and wanted some data that was in an old message, use W and when it comes back, the contents of the message you killed will start at line 10. You can then edit or modify as required, then save.

Now that you know how to use this system, give it a try. The number is 312-295-6926.

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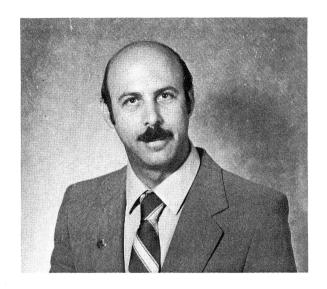
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# From the IAC Office...

Ken Silverman, Executive Director



You might have noticed a small change on our masthead page — a change of address for the International Apple Core. The change from 910A George Street to 908 George Street looks like a very short distance move. In fact it was no move at all.

When the IAC first moved into its current office location, a new building with the number "910", there was no address for our portion and separate entrance to the building. We contacted the United States Postal Service, whose local folks in charge of such things were glad to assign the number "910A" when we arrived. Local officials likewise made no objection to this arrangement at that time.

After six months of letting the world know our official address, the City of Santa Clara government informed us that they "do not use" letter designators such as "A" or "B". We were ordered to change our number to 908 George St forthwith. As you might know, arguing with government functionaries will only frustrate the person attempting to do so.

Even though we have been promised by the Postal Service that all of your mail will still reach the office, we have changed the address. So, on a temporary basis, our sign on the front of the building reads "908", and a small line below it reads "Formerly 910A".

Bottom Line: when writing to the IAC, please use the new designation, and please change your records to show 908 George St., Santa Clara, CA 95050.

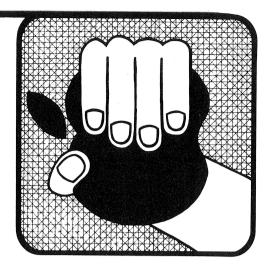
# Available from the IAC:

Apple /// Software	<b>Apple Orchard Back Issues</b>
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Hi-Res Games (9 on disk) 8.00 Applesoft Tutorial 8.00	International Apple Core 908 George Street Santa Clara, CA 95050

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# **HARDWARE**

# Input/Output

Voicebox Speech Synthesizer can speak thousands of words unassisted, generated directly from a firmware ROM dictionary located on its plug-in card. This means that speech, with variable intonation and speed, can be used in any of your Apple programs without ever having to load a disk. And, in case you want to expand your dictionary to include unusual words or words in foreign languages, you can easily define them with 64 phonemes and store them by the thousands on one of the six special dictionaries provided. The Voicebox can be easily coded to sing on key with uniform bar lengths and you can store (record) your songs on disk, retrieving and modifying sections whenever you want. With the disk system, you'll also enjoy an educational random sentence generator and graphic speech animation. The Voicebox will run on a 32K Apple II with Applesoft in ROM and DOS 3.3. Comes with a loudspeaker and disk -\$215. Also available is a less-expensive Voicebox excluding firmware ROM, singing capability and optional speaker - \$139. The Alien Group, 27 West 23rd Street, New York, NY 10010 (212) 924-5546.

The AD-3 Apple interface card performs A/D conversions with 3 DC and 1 AC ports. Direct or filtered D/A conversions. Features 16 user-definable I/O ports, 2 multi-mode timers and interrupt capability. Includes board, manual, ribbon, cables and a demonstration diskette. Requires DOS 3.3 and 48K with Applesoft in ROM. A knowledge of machine language will enhance your use of this card. \$99 from Faxscan, Inc., 3148 Dorf Drive, Dayton, OH 45418.

Mountain Computer presents a 5 megabyte hard disk subsystem with dynamic file allocation which automatically consumes file space only when needed, not when initialized. Makes available up to 50% more disk space than competitive units and uses no extra memory space. Allows large files, up to 5 megabytes for database applications in CP/M and Pascal. Supports DOS, CP/M and Pascal for the Apple II and MS DOS and CP/M 86 for the IBM PC. Includes everything you need: disk controller, power supply, interface card, cabinet, cabling, and the Mountain Virtual File System software. \$2,695 at your local dealer or contact Mountain Computer, Inc., 300 El Pueblo Road, Scotts Valley, CA 95066 (408) 438-6650.

The LCM 100 is a 9600 baud modem that goes wherever you want it to go. because it eliminates the use of expensive RS-232 cables between your computer and other data communication equipment at up to 9600 baud, while utilizing inplace power lines on site. The LCM 100 saves you money, as a result, because you can put the terminal where it's needed, quickly and efficiently. Uses existing power line to send signals remotely so no connecting cables are needed - just plug them in and go. Enjoy the sound of silence, with the chattering computer and the patter of the printer tucked away in a closet somewhere. Your staff will appreciate the reduction of noise pollution, more than likely with a significant increase in productivity. Communications Research Corporation, 1720 130th Avenue N.E., Bellevue, WA 98005 (206) 881-

Complement your Apple /// or IBM Personal Computer with a Color RGB Monitor - buy direct. Provides 8 standard colors; 13-inch diagonal screen; 16 colors on your IBM or Apple ///; Up to 80 characters per line; 360 dots per color (horizontal resolution). \$389 plus \$9.50 shipping and handling. Apple /// and IBM customers please add \$29.50 for factory installed mod board. Call toll free for immediate shipment: (800) 258 - 6370 in NH (603) 893 - 2047. Data Ed, 18 Bridge Street, Salem, NH 03079.

The Daystar Disk System with increased speed and increased data capacity adds versatility to your system. Through the use of an intelligent controller using I/O ports and an on-board data buffer feature, your microcomputer can perform up to nine times faster. Daystar increases the data capacity of your system, with 6.4 or 12.8 megabytes of unformatted storage and each controller will handle up to 4 drives. A one megabyte floppy back-up is also available. This increased capacity allows your system to expand as your needs change. The subsystem is available with interfaces for: Xerox, NEC 8000, Apple II, Commodore, VIC-20, TRS-80 Model II, Heath/ Zenith 89, S-100 and soon Apple /// and TRS-80 III. ASAP Computer Products, Inc., 1198 E. Willow Street, Signal Hill, CA 90806 (800) 421-7701 or (213) 595-6431, (714) 891-2663.

The Micro Link 1200 is a Bell 212 compatible, 1200 baud, full duplex modem. It provides 120 characters per second over any standard phone line. This new 1200 baud modem packs Bell 212 compatibility into 10 integrated circuits - by far the lowest parts count of any 212 modem available. The extremely low parts count translates directly into long life, outstanding reliability and low production costs - savings passed on to you in a lower price. Features originate and answer capability. The Auto Link 1200 includes these features plus autoanswer. Both units are FCC certified for direct connection to the phone lines via a standard RJ11C phone jack and include RS232, Self-Test, and a one year limited warranty. Micro Link 1200 \$449, Auto Link 1200 \$549. U.S. Robotics Inc., 1035 West Lake Street, Chicago, IL 60607 (312) 733-0497.

Hard disk system offers 12 megabytes for \$3,195 for Apple, TRS, Heath, S-100, IBM and others. Features a switching power supply, Winchester drive, host adapter card, sealed case, software, auto attach CP/M, hard disk utilities, real time clock, formatting program assigns alternate sectors for any weak sectors detected during formatting assuring the lowest possible error rate. Full one year warranty on all parts and workmanship. Also available: attach for Apple DOS, TRSDOS, OASIS and optional 5 1/4-inch floppy. Quality Computer Services, 178 Main Street, Metuchen, NJ (201) 548-2135 or (800) 631-5944.

The Space Tablet is the first threedimensional spatial digitizer compatible with Apple II and IBM Personal Computers. The Space Tablet lets you interactively record X, Y and Z coordinates of any object - even one that doesn't really exist -then allows you to manipulate any or all of those coordinates with the push of a button. Software allows you to rotate and rescale drawings instantly - or even compose one drawing from several components. Applications include design, engineering, architecture, science, CAD/ CAM, graph reading and more. It can even be used as a 2-dimension digitizer. 3 axis Space Tablet with software - \$475. 4 axis Space Tablet with software - \$595. Requires 48K Applesoft, DOS 3.3. Micro Control Systems, Inc., 230 Hartford Turnpike, Vernon, CT 06066 (203) 643-4897.

Appletime Clock card is fully Mountain Computer software compatible. Includes datebook - a complete desk calendar. Provides time of day, calendar date, day of week, international time-keeping ability, recharging battery backup, complete software formatting, and a program timer. A disk is included with all software required -\$99. Also, VIP G · the ultimate graphics card is a Centronics parallel interface and cable featuring text and graphics screen dump routines, graphics with inverse and emphasized modes, enlarged picture mode, variable line length with left and right margins, clock graphics, chart recorder mode, 90 degree picture rotation - \$119. Upgradable to include a serial port with full RS-232 capability and software baud rate control from 110 to 9600 baud - \$149. From MBI Corp., 1019 8th Street, Suite 200, Golden, CO 80401 (303) 279-8438.

Thunderclock Plus puts your Apple to work around the clock. Just plug it in and your programs can read the month, date, day of week and time - down to the second - in any of Apple's languages. So your Apple can do any number of tasks for you automatically - in the office, the lab or at home. It's compatible with DB Master, Micro-Courier and VisiDex to name a few. With business or communications software, your Apple can automatically access a data base or send electronic mail when the rates are lowest. In addition, Thunderclock Plus can organize your disk files with optional DOS-Dater software that upgrades the regular DOS on your disks. So every time a program is saved or a file is modified, the time and date, to the minute, are stored in the catalog with the file name. With the optional X-10 interface and a BSR X-10 Home Control System, your Apple can turn on your lights, water your lawn...whatever you desire, according to schedules you create. It comes with menu-driven scheduler software, so it's easy to design and modify schedules that can run in the background while you

have "hands-on" use of your Apple. Comes with a one-year warranty. Powered by on-board batteries, it runs accurately for up to four years without battery replacement. Thunderclock Plus and BASIC software - \$150, DOS-Dater/Demo disk - \$29. X-10 Interface option - \$49, Pascal software disk - \$29. At your dealer or contact Thunderware, Inc., 44 Hermosa Avenue, Oakland, CA 94618 (415) 652-1737.

**Time II** is a real-time clock/calendar for the Apple II computer. It tells time in hours, minutes and seconds with program-selectable 24-hour military or 12hour formats. It tells you the date with year, month, date and day of the week and leap year information. Standard features include rapid date and time setting, crystal control for 0.0005% accuracy, latched input/output ports for easy PEEK and POKE BASIC programming, and an onboard battery backup that provides power off operation for more than four months. With Time II, you can call up schedules, time events, and date listings and other printouts. DIP switch-selectable interrupts permit foreground and background operation of two programs simultaneously. Time II is supplied with a 16-sector DOS 3.3 disk with TIME II programs and a 23page operating manual that contains many example programs to use with your Apple II - \$129. Applied Engineering, P. O. Box 470301, Dallas, TX 75247 (214) 492-2027.

This professional voice quality text-tospeech synthesizer - the Intex-Talker features an unlimited vocabulary with 64 programmable levels of inflection and a built-in 6K text-to-speech algorithm. Intex-Talker translates ASCII characters into speech with an advanced text-to-speech algorithm. Simply type English text and a talk command into your keyboard. It can annunciate data transmitted at high baud rates over telephone lines or serve as an unlimited vocabulary audio interface for telephone transaction applications. Equipped with keyboard, Intex-Talker can function as a typewriter for the blind or as a communicator for the vocally impaired. Every ASCII character is recognized (including punctuation) as it is typed and can be echoed automatically. With home computers, Intex-Talker adds both fun and utility. Computer games come to life. You computer can now speak instructions, warnings, praise - and it has music and sound effects capabilities too. Features RS-232C or parallel connection; phoneme based speech synthesizer chip; 6K text-to-phoneme algorithm; 750 character buffer; adjustable baud rate (75 -9600); X-on/X-off handshaking; user expandable memory; onboard amplifier and power supply; spelling output option. \$295 from Intex Micro Systems Corporation, 755 West Big Beaver Road - Suite 1717, Troy, MI 48084 (313) 362-4280.

Chatsworth Optical Card Reader allows ease of data entry. Mark standard cards with a pencil. No special training needed. The 2000 Series even reads preprinted data and punched holes. Comes with 2 different interfaces: an intelligent interface for the Apple and an RS-232C. Both models simplify user software by converting card data easily to one of 4 different codes, or any combination of them: ASCII, Card Image, Quick Program and Self Programming. Automatic feed reads up to 60 cards per minute, automatically! Just load the feeder tray and the 2000 does the rest. Cards can vary in length from 5 to 12 inches, and each one can contain up to 128 columns of data. State-of-the-art fibre optics read each card reliably and accurately, with a single, longlasting bulb providing the light source. \$1,595 including a choice of interfaces. Chatsworth Data Corp., 20710 Lassen Street, Chatsworth, CA 91311 (213) 341-9200.

Micromonitor is a 3 x 5 x 1 ½-inch device that can connect your microcomputer to the Bell Telephone Network. The Micromonitor is a DTMF (Touch Tone) transceiver/coupler outfitted with parallel input/output, two 600-ohm audio channels, ring and off-hook signaling circuitry, a retriggerable circuit that signals the presence of a conversation, and circuitry

that monitors the status of the telephone trunk (e.g., dial tone, ringing, busy, etc.). Two onboard optoisolators can control your equipment by means of Touch-Tone commands. The Micromonitor's Touch-Tone transmitter allows outward dialing in PABX applications, including automatic redial and speed dialing, while its companion Touch-Tone receiver permits endto-end signaling for remote data entry. When used with a microprocessor or an intelligent controller, the Micromonitor is capable of performing sophisticated functions such as telephone call accounting, information retrieval, radio-telephone paging, and remote security monitoring. Certified by the FCC, the Micromonitor is compatible with Apple, STD bus, and many single-board computers. It costs \$495, including a manual. MK Enterprises, 8911 Norwick Road, P. O. Box 29654, Richmond, VA 23229 (804) 740-8380.

State of the art **8-inch disk drive subsystems** give a remarkable 2.4 megabytes in the space of a single-drive cabinet, 4.8 megabytes storage capacity in the space of a 2-drive cabinet. Perfect addons for Apple, IBM, Radio Shack and all 8-inch Shugart compatible computers. 2-drive system • \$1,695, 4-drive system • \$2,995. With protect switch option • \$30 per drive. Columbia microSystems, Inc., 905 E. Broadway, Columbia, MO 65201 (314) 875-8900.

The Anderson Jacobson AJ 1233 Acoustic Data Coupler is capable of communicating with Bell 212-type modems. The AJ 1233 is an orginate-only full-duplex acoustic coupler with switchselectable data rates of 1200 bps for synchronous or asynchronous communications and from 0 to 450 bps for asynchronous communications. It can be used either as an acoustic coupler or as a modem, and it can communicate with VA 3400 and AJ 1200 series modems and in Bell 103 or 113 modes. The microprocessor-controlled, FCC approved AJ 1233 costs \$995. Anderson Jacobson Inc., 521 Charcot Avenue, San Jose, CA 95131 (408) 263-8520.

Amdek has released the new AMDISK-3 Micro-Floppydisk drive system, consisting of 2 drives and a power supply, fully compatible with 5-1/4-inch floppy disk drives. The 3-inch disk is encased in hard plastic, protected from dust and fingerprints, and easy to mail. Features 1 Megabyte (unformatted) storage capacity and a built-in power supply. Amdek Corp., 2201 Lively Blvd., Elk Grove Village, IL 60007 (312) 364-1180.

SVA, Inc. has expanded the capability of the RVX4 Controller Card by providing a convenient backup utility for Corvus hard disk systems via 8-inch floppies.

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At Apple Computer, we go more than halfway to meet the needs of the people who use our products. Our genuine interest is in solving customer problems, and that means providing as much information as they need to use their Apples effectively.

If you've been into personal computers long enough to know how to spot and take advantage of industry trends (both software and hardware), you could be the kind of hobbyist/technologist that belongs in Technical Communications at Apple.

# Technical Communications Engineer

Here's what you'd be doing: You'd keep up to date on current state of the art, so you can identify data sources, gather information and summarize it, and respond to technical questions from the field support organization. You'll also write and publish applications notes answering common questions, and represent Apple at trade shows and conferences. You'll be concerned with

following up on requests to make sure problems are solved, and work closely with Apple's internal marketing, manufacturing and engineering groups. In short, you'll be a liaison between Apple's corporate technical groups and the field support organization.

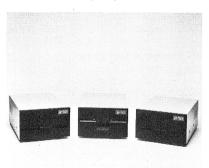
To qualify, you'll need a BS degree in Computer Science, or equivalent experience, with a background in software and a hands-on knowledge of hardware. You should be fluent in Pascal, COBOL, BASIC, CP/M, and 6502 Assembly languages. Some customer support experience would also be a plus.

Empathy for customers and users is one of the values that guide Apple's day-to-day activities. If you share this value with us and enjoy spreading your technical knowledge, send your resume to Professional Staffing, Apple Computer Inc., 20525 Mariani Avenue, Dept. CTE, MS-16-B, Cupertino, California 95014.



Using the AMS 8000 8-inch floppy turnkey system, over 2 megabytes of removable media can be on line with the Corvus. Also, Qume, Siemens, Persci or any ANSI standard 8-inch drive system will operate with the ZVX4 controller. SVA has introduced this feature as an alternative to the Corvus Mirror System, Although higher in initial cost, the 8-inch floppy provides: 1) faster access to specific data files 2) data transportability 3) proven reliability 4) longer media life and 5) multiple copies with ease. The Corvus compatible ZVX4 controller supports all standard DOS 3.3 hard disk software and retails for \$595. The AMS 8000 dual drive turnkey systems start at \$2295. Present owners of the ZVX4 may purchase a Corvus upgrade kit for \$50. Sorrento Valley Associates, Inc., 11722 Sorrento Valley Road, San Diego, CA 92121 (714) 452-0101.

Three new disk drives give Apple /// users a wide choice. Each is a 5-1/4" type, same as the built-in Apple /// drive, but with capacities of up to 572 KBytes. At the low end, the Micro-Sci A3 with 143 KBytes has the same capacity as the Apple Disk /// but is much less costly. For those who prefer greater capacity and performance, Micro-Sci says the A73 delivers twice the capacity (286 KBytes) with track-to-track access of 5 Msec compared to 18 Msec for other systems. With the same 5 Msec seek rate plus 572 KBytes capacity, the Micro-Sci A143 can even be used to back up a ProFile Hard Disk, according to the company. A driver permits the Apple /// to take full advantage of the extra capability of the high-performance drives while running any SOS compatible software. such as Business BASIC, P.F.S ///, Business Graphics, Pascal programs, PFS Reports ///, Apple Writer ///, VisiCalc /// and Mail List Manager. Up to three external drives can be daisy chained, and these may be any mix of A3's, A73's, A143's and Disk///'s. Micro-Sci, 2158 South Hathaway Street, Santa Ana, CA 92705 (714) 662 - 2801.



Addmaster Corporation announces a new parallel interface board and data handling program for the Apple II Plus Personal Computer and the TRS-80. These interface a paper tape reader and punch to the computer, and with the cable supplied it is easy to get your

system up and running. The interface is designed for the Model 600-1 punch and Model 605 reader, and both are interfaced with one board and cable, priced at \$90. The Data Handling Program at \$115, a 600-1 Punch at \$1,249, and a 605 Reader at \$575 add a complete paper tape capability to your Apple II Plus, for less than \$2,100. Addmaster Corporation, 416 Junipero Serra Drive, San Gabriel, CA 91776 (213) 285-1121.

# Memory

Up to now, bubble technology has been the exclusive domain of large computer systems. The MPC Bubble Memory Disk Emulator for the Apple II is a compact board with 128K bytes of non-volatile data storage. Executes DOS commands three times faster than a standard floppy disk drive. Uses less power and functions quietly, efficiently and error-free in any hostile environment. The rugged, solidstate bubble memory is totally non-volatile. Unlike a disk, there are no moving parts to wear. On-board error correction plus automatic power-down in the event of power failure or brown-out ensures absolute data storage reliability. They offer a two year warranty. MPC Peripherals Corp., 9424 Chesapeake Drive, San Diego, CA 92123 (714) 278-0630.

The Ramex-128 plug in board for the Apple II provides 128K of additional memory. This is the only 128K card that performs its own refresh. All the others have to be strapped to the Apple motherboard, requiring the installer to go poking about, removing and reinserting chips. The Ramex-128 just plugs into any slot and goes. Includes software on disk to make the Ramex-128 into a super-fast disk-drive emulator. A separate program, Super Expander, available from Omega or their dealers for \$64.95, will endear the Ramex-128 to VisiCalc users. Although all 128K cards allow 'Visicalculators' to manipulate incredibly large and complicated models, some software can take as long as sixteen minutes to load a maximum-capacity model into the expanded memory. Super Expander will save a 30 x 254 model in 20 seconds and load it back into the Ramex-128 in another 20 seconds! Available from Apple dealers, or direct from Omega Microware, 222 S. Riverside Plaza, Chicago, IL 60606 (312) 648-4844.

# **Printers/Plotters**

Seikosha GP-100A graphic printer puts full dot addressable graphics at your command. The GP-100A lets you repeat a column of data as many times as needed with just one command. Software control enables double-width character output, and the positioning is both character and dot addressable. Other features include intermixing of graphics, regular and double width modes of the same line; self-test printing; paper width adjustable up to 10 inches; Centronics type parallel interface or optional RS-232C, IEEE-488, Apple II, etc. \$389 at your local dealer or contact Axiom Corporation, 1014 Griswold Avenue, San Fernando, CA 91340 (213) 365 - 9521.

The new Tally T-1805 dual purpose serial printer uses a unique 40 x 18 matrix dot pattern for high quality correspondence printing; or, flip a switch, and it uses a 7 x 9 matrix for high speed data processing printing. In the high speed mode, it generates reports at time-saving throughput rates reaching 200 lines per minute. In the reduced speed correspondence mode, its pivoting print head lays down overlapping dots to create a letterperfect character that looks like it came from an office typewriter. The T-1805 offers quality construction, high reliability, ease of operation and operator conveniences. The T-1805 is exceptionally quiet; its 53 dbA noise level ranks it as the quietest impact printer on the market. Priced at under \$2000. Contact Mannesmann Tally, 8301 South 180th Street, Kent, WA 98031 (206) 251 - 5524.

Bytewriter daisy wheel printer is a letter quality printer and typewriter in one package. The Bytewriter is a new Olivetti Praxis 30 electronic typewriter with a microprocessor controlled driver added internally. Features underlining, 10, 12 or 15 characters per inch switch selectable, second keyboard with foreign grammar symbols switch selectable, changeable type daisy wheel. Centronics compatible parallel input operates with Apple, TRS-80, Osborne, IBM and others. Cartridge ribbon for soiless ribbon change, \$795 plus shipping from Williams Laboratories, 125 Northview Road, Ithaca, NY 14850 (607) 272 - 1132.

The Datasouth DS180 matrix printer features dot addressable raster scan graphics producing output of computer generated charts, maps and graphs at a resolution of 75 x 72 dots per inch. Variable horizontal pitch selection allows printing at 10, 12 or 16.5 characters per inch plus double wide printing at 5, 6 or 8.25 characters per inch. The expanded

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2K FIFO print buffer handles a full CRT screen dump at up to 9600 baud without delaying the host system. Also offers transparent mode for isolating communications problems, and for APL users, the dual ASCII/APL character set option. The many other features include 180 CPS print speed, cartridge ribbon, tractor feed (front or bottom), non-volatile format retention, fast paper slew, audio alarm, selftest, perforation skip-over, etc. At your local dealer or contact Datasouth Computer Corporation, P. O. Box 240947, Charlotte, NC 28224 (704) 523-8500.

Turn your Olympia ES101 or Remington 210 typewriter into a letter quality printer for the Apple II computer. The **Dataface D101 Apple II Interface Card** gives you a letter quality printer while allowing the full use of your office electronic typewriter. The D101 requires only one card, the cable is included. Installation is simple - just plug it in. No jumper to set and no soldering necessary - \$349.50. Dataface Inc., 2372 A Walsh Avenue, Santa Clara, CA 95050 (408) 727-6704.

Now you can have letter quality printing and professional features for just \$995. The AJ daisy wheel printer terminal is reknowned for exceptional performance, high reliability, and applications versatility. Features 30 cps letter quality daisy wheel printing, changeable type faces, full ASCII keyboard with numeric pad, high

resolution X-Y plotting, complete electronic forms control, 128-character buffer, asynchronous RS-232 interface. Printwheel, ribbon cartridge and cable included with 30-day parts/labor warranty. Options include forms tractor, pin-feed platen, paper trays, side shelves, extra printwheels, APL keyboard and a 2K buffer. Call your nearest Anderson Jacobson regional office for details: San Jose, CA (408) 946-2900; Rosemont, IL (312) 671-7155; Hackensack, NJ (201) 488-2525 or check the phone book for the number of your local AJ sales/service office.

The MicroPrism Printer offers dot matrix print quality approaching that of daisy-wheel printers. The draft mode operates at 110 cps, while correspondence quality throughout is 75 cps. High-density graphics are available in 84 x 84 dot per inch format, and in all modes characters are formed in a single pass. The MicroPrism makes use of a nine-wire staggered design printhead, capable of printing nearly fully-formed characters. Integral Data Systems, Milford, NH 03055 (603) 673-9100.

The Dotsy Printer Center offers both 140 cps dot matrix and 20 cps daisy wheel printing. The dot matrix mode has a bi-directional 9 x 7 dot matrix with true descenders, and the daisy wheel mode has a bi-directional daisy wheel print

element. The print format for the dot matrix mode is 132 columns and for the daisy wheel mode is 132 columns at 10 pitch. The dot matrix mode features 96 ASCII characters with upper and lower case. The daisy wheel mode has an interchangeable daisy wheel print element with over 60 type styles. Available interfaces include Apple II and ///, IBM, Commodore PET, and TRS-80 I, II, and III. \$1450 from Metaframe Computer Corporation, Riverside Street, Nashua, NH 06301 (603) 880-3005.

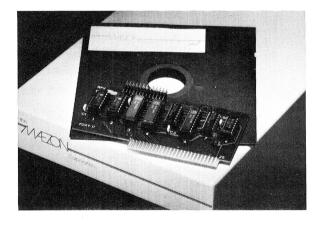
Daisywriter 2000 is an intelligent letterquality daisy wheel printer. The printer features a 16K data buffer with an optional 48K buffer available. It also features a universal interface which makes it plug-compatible with all computer systems. Daisywriter 2000 features: automatic proportional spacing, automatic centering, subscript, superscript, true automatic margin justification, 16 protocol selections, and automatic baud rate selections. There are 12 different type fonts available in five different languages. The printer uses standard cartridge film ribbon such as used on IBM Selectric II and III. Controls allow for selection of 10, 12, or 15 characters per inch and 1, 1-1/2, or 2 line spacing. Baud rates are DIPswitch-selectable or automatic from 50 to 19,200. Computers International, 3540 Wilshire Blvd., Los Angeles, CA 90010 (213) 386-3111.

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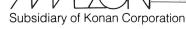
Quantity pricing available.

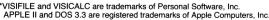
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Apple Computer announces two printers, the Apple Dot-Matrix Printer and the Apple Letter Quality Printer. Both use the features of the Apple II and the Apple ///. The Apple dot-matrix printer has highresolution graphics output (7 x 9 dot matrix) and a bi-directional speed of 120 characters per second. The Apple letterquality printer is a 40 cps daisy wheel printer with graphics capability. It prints bidirectionally on individual sheets or continuous forms. Multiple fonts are selected by changing daisy wheels. Apple Computer, Inc., 10260 Bandley Drive, Cupertino, CA 95014 (408) 996-1010.

The Citizen 300 dot matrix line printer is a desktop-size, variable speed unit designed for sophisticated printing capabilities in distributed data processing and minicomputer system applications. It features a print speed of 72 to 300 lines per minute, and allows users to generate near letter quality correspondence, data processing reports and tables, and high resolution graphics for bar codes, OCR, labels, charts, forms generation and multi-part formsets. The 300 Line Printer includes dual microprocessors with RAM and ROM for character selection and generation, three boards and a two-digit alphanumeric fault identification display. Priced under \$5000. C. Itoh Electronics, Inc., 5301 Beethoven Street, Los Angeles, CA 90066 (213) 306-6700.

The DXY Engineering/business Plotter is an economical desktop multi-pen unit. Priced at under \$1000, it's compatible with the Apple, IBM and other personal computers. It has built-in software (expandable ROM) to interpret BASIC commands. Features a 10- by 14-inch effective plotting range and a Centronics interface for easy connection to your computer. Pens, penholders, chart hold-downs, and dust cover are included. Charts on popular graphics media including vellum and mylar. Maximum plotting speed is 2.73-inches per second and step size is .003-inch/step. \$949 from Amdek Corp., 2201 Lively Blvd., Elk Grove Village, IL 60007 (312) 364-1180.

# Miscellaneous

Apple Computer announces Softcard ///, an Apple ///, Z-80 board for CP/M capability. With the Apple Softcard /// System, CP/M-based application programs join the Apple /// library of software, which is based on the Apple /// Sophisticated Operating System (SOS). The system supports the Apple 5-megabyte mass storage system, ProFile, on

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which both SOS and CP/M files can be stored. The Apple Softcard /// System includes a plug-in Z-80 microprocessor card, CP/M software, four manuals, and Microsoft BASIC. The system requires a 128K Apple /// personal computer with a suitable video display device. Optional peripheral devices include a compatible printer, external Apple Disk /// drives or Profile hard-disk drive. \$450 from your local dealer or contact: Apple Computer, Inc., 10260 Bandley Drive, Cupertino, CA 95014 (408) 996-1010

Syncom diskettes assure excellent archival performance in the following ways. First, with calibrated coercivity - a precisely balanced blend of milled ferrous oxides that allows the Ectype coating to respond fully to 'write' signals, for strong, permanent data retention. Then, a burnished coating surface boosts both signal strength and packing density. Carbon additives drain away static charge before it can alter data. Each diskette is write/ read-back certified to be 100% error free. Contact Syncom, Box 130, Mitchell, SD 57301 (800) 843-9862 or in SD (605) 996-8200.

Power supplies for all your needs can be obtained from Power-One. The International Series can be used anywhere, for almost any application. It's the only power supply available that meets the most important requirements of VDE, UL, CSA, BPO, IEC, CEE and ECMA. This was achieved by using a new patented winding process featuring separate, fully enclosed primary and secondary windings. This unique construction complies with worldwide safety standards, including: leakage current, line to ground of 5.0 micro-amps, 9.0 mm live parts spacing, dielectric withstanding voltage 3750 VAC input to ground and input to outputs and 500 VAC outputs to ground. Each unit is rated at 100, 120, 220, 230 and 240 volts, 47 to 63 Hz. From 5 volts and 3A - \$32.95 to triple output models - \$134.95. Power-One, Inc., Power One Drive, Camarillo, CA 93010 (805) 484-2806 or 987-3891.

The Compumotor System of motors, drives, indexers and computer interfaces gives you 0.001 to 2.5 horsepower in packaged, plug together building blocks. Motion control is as easy to understand as it is to use. Imagine simple ASCII commands on your RS-232C serial interface, allowing you to position up to 16 motors simultaneously with accuracies of one thousandth to 20 millionths of an inch. Controlling speeds with an accuracy to 0.01 percent of set rate. Running motors at 2 revolutions per day to up to 3000 revolutions per minute. Torques from 6 to 12000 in-oz. Rotary resolutions of 400 to 50,000 parts per revolution. Linear resolutions with leadscrews from one one-thousandth to 10 millionths of an inch. For more information call (800) 358-9068 or in CA (707) 778-1244 collect. Compumotor Corporation, 1310 Ross Street, Petaluma, CA 94952.

The Model GS-2 Glitch Sentinel power-line monitor from Billings McEachern diagnoses power problems for microcomputers, disk drives, and other sensitive electronic equipment. The Sentinel checks for power failures, low and high line voltages, spikes, voltage drops, highfrequency noise, and high and low line frequencies. Built-in features include a clock/calendar, a user-enabled audible alarm, latched LEDs for each alarm type, and a printer that prints alarm messages in English - \$900. The Model GS-1 is similar to the GS-2 but it does not have the printer, clock/calendar, and the line-frequency monitoring capabilities - \$300. The Model GS-3 is also similar to the GS-2 but is designed for three-phase power monitoring. Billings McEachern Inc., Suite 106, 333 Cobalt Way, Sunnyvale, CA 94086 (408) 746-0830.

The Lynx-300 lets your field-service personnel make all necessary floppy disk alignment adjustments without an oscilloscope. The Lynx-300 comes with a colorcoded set of probes, which attach directly to a drive's printed circuit board, and with a series of LEDs to indicate the proper

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settings for radial and index/sector adjustments and to indicate if the adjustment is not within specifications. The Lynx-300 is powered directly from the drive. Comes with a zippered leatherette case and is priced at \$394 (U.S funds) and \$475 (Canadian funds). For complete specifications, contact Lynx Design & Technology Inc., 3880 Chesswood Drive, Downsview, Ontario M3J 2W6, Canada, (416) 638-4875.

Do you always have the wrong sex RS-232 connector? Let B&B Electronics help you convert your males to females and your females to males. A set of both RS-232 Gender Reversers is only \$34.95. Send for their catalog of other RS-232 problem solvers. B&B Electronics, P. O. Box 475B, Mendota, IL 61342 (815) 539-5827.

The Wood Works has introduced handsome and functional all-wood worktables, shelves and printer tables designed specifically for personal computers. The tables are available in a choice of Oak or Birch hardwoods and wood veneers, with either a natural or medium walnut stained finish. Cherry and Walnut are also available in a natural finish only. The printer table is on brass finished casters and may be ordered with or without a paper slot. All components are economically shipped knocked-down via UPS, and connect simply with modern fittings. All tables are typing height. The largest worktable is 46 inches wide and 26 inches deep. It is available in Oak or Birch, with a full shelf unit, for \$195, plus freight. Walnut and Cherry are more. Contact The Wood Works, Rt. 2 Box 407, Lawrence, KS 66044 (913) 842-7797.



Replacement Disk II Cables come in lengths up to 20 feet. These NON-shielded cables are tested seven different ways to insure reliability that can't be acquired with normal extensions. These cables are available in one foot increments up to 20 feet long. Price varies with the length you require. The most popular length is four (4) feet long at \$25.95. Add \$1.50 per foot for additional length. (Shorter cables available also). Master Manufacturing, 14319 E. Swift Drive, La Mirada, CA 90638 (213) 944-1069.

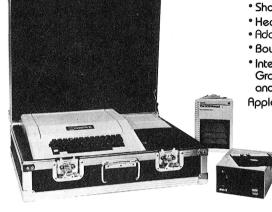


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Owners of Apple, HP-85, Commodore, IBM and other small computers can now use their keyboards to control stepping motor motion through two new Modulynx interface cards available from B&B Motor and Control Corporation. The RS232C and IEE488 cards control stepping motor speed, direction, distance, acceleration/deceleration, pause times between moves, and axis designation. Each card controls up to six axes of machine motion, allowing the user to create multi-axis machine control systems. Standard buffer memory is 1K bytes expandable to 4K bytes. Both cards interconnect with other Modulynx cards, such as a digital indexer and a variety of stepper power-driver cards. On-board connectors eliminate the need for timeconsuming interwiring. Interface cards can be custom-packaged or supplied with either card cage or 19-inch rack mount-

ing kits. Custom motion control systems are also available. For a detailed applications-oriented catalog, contact B&B Motor and Control Corporation, Apple Hill Commons, Burlington, CT 06013 (203) 673-7151.

Compucart announces the first ergonomically designed mobile computer workstation. The keyboard shelf pulls out at the correct height for comfortable interactive entry, and is vertically adjustable to accommodate Apple II, Apple /// and most other personal, micro/mini computers and terminals. The Compucart offers security by returning the computer to the closed position when not in use or running unattended, the rolldown tambour door is closed and the whole workstation, hardware and software, is secured with one lock. In addition, the Compucart will help you eliminate unnecessary physical stress when using the system for extended periods of time. By placing the keyboard and media storage at your fingertips, and allowing you to vary focal length to the CRT screen. the Compucart helps eliminate excessive and unnecessary motion while it promotes good working posture. The Compucart offers the additional feature of mobility. To complement the Compucart there are a few useful options: 1) Printer cart with optional accessory drawer. paper supply shelf and wire catch basket, 2) Multi-outlet electrical service box. The

Compucart offers the additional feature of mobility. The Compucart is available in Almond and English Oak. Compucart, 201 North Rome Avenue, P. O. Box 2095, Tampa, FL 33601-2095 (813) 251-2431.



The Adwar Apple Proc Mod is a circuit board which plugs into Slot 7 in the Apple computer to modify sync output. This permits 1/2" and 3/4" videotape recording of the Apple signal. Subsequent duplication and editing can be performed without the usual loss of color. This modification brings the Apple signal closer to standard video tolerances so that video machines and equipment can use the signal - \$225. The ARS-170A Apple Broadcast Mod is uniquely designed to correct the non-standard scanning rate of the Apple. It stores an entire Apple video frame in solid state memory at the Apple scanning rate and then reads from that memory at the standard NTSC rate. The ARS-170A operates in real time, delayed by one frame to provide a broadcastable signal - \$2,150. A demo tape is available at \$39.95 each - please indicate format (34", Beta, VHS). Adwar Video, 10 Fifth Avenue, New York, NY 10011 (212) 691-0976.

The protection of computer teminals, electronic cash registers and other electronic data-or word-processing equipment from operator-generated static charges is described in a four-page bulletin from 3M's Data Recording Products Division. Entitled "Islands of Protection," the bulletin emphasizes the use of 3M Static Control Floor Mats, specially conductive plastic floor coverings with grounding connections, to discharge static before an operator can inadvertently damage equipment or obliterate data by touching the controls. The mats are available in a variety of sizes and configurations, both in rigid form, to accept office chairs; and softer form, providing foot comfort for standing operators. The bulletin may be obtained free by writing to Department DR82-8, 3M, P. O. Box 33600, St. Paul, MN 55133 (612) 733-9572.

# **SOFTWARE**

# **Business**

No matter how you slice it, the only way you're going to know if a data handling program is right for you is by running it on your computer, solving your problems, your way. The only database management system (DBMS) that lets you do that is dBASE II. Conceptually, dBASE II is a relational database management system, like the system IBM introduced on their main frames last year. Practically, dBASE Il is the most powerful DBMS made for a micro. It handles multiple datbases on a single drive and simplifies everything from accounting to project management to monitoring rainfall on the Upper Volta. Create databases, append new data instantly, update, modify and replace fields, record an entire database. You can do automatic calculations on fields, records and databases, accurate to 10 digits. And you can use dBASE II interactively for instant answers. Or save your instructions and automate your data handling with two words: DO Finances, DO Rainfall, DO whatever has to be done. Manufacturer will let you try dBASE II free for 30 days; send \$400 and they'll send you a copy of dBASE II that you can run on a 48K Apple with CP/M (\$700 for expanded hard-disk version). Put it through its paces. Then after 30 days, send it back and they'll return your money, no questions asked. Ashton-Tate, 9929 Jefferson Blvd., Culver City, CA 90230 (213) 204-5570.

Apple Computer, Inc., announces Quick File ///, a filing system for managing small to medium size collections of information on the Apple ///. Quick File /// arranges records in alphabetical, numeric, date, or time order. The program requires an Apple /// system with at least 128K RAM - \$100. Also Apple /// Cobol, is a Cobol language capable of executing mainframe applications. Apple /// Cobol features: Animator, a screen-oriented, source-level debugger and Form-2, a Cobol source code generator which creates data entry screens and generates Cobol source for use in a program. Apple

/// Cobol requires a 128K Apple /// system, a video display device and at least one external floppy or hard disk drive. Full use of the Animator requires 256K - \$500. Apple Computer, Inc., 10260 Bandley Drive, Cupertino, CA 95014 (408) 996-1010.

The Organizer is an integrated hardware/software package which provides a range of functions including a note pad editor, a filing system with rolling indexes, an alarm clock, a programmable calculator, and an appointment calendar. In addition, the program handles tasks normally assigned to an operating system, such as maintenance of directories, formatting and copying disks, communication with I/O and mass storage devices, and error detection and recovery. The Organizer's program resides on a single, copyable disk. A clock card provided with the system maintains the date and the time of day. Over one hundred alarms can be set, to sound tones or display notes at scheduled times. The manual has both tutorial and quick reference sections. Keystroke by keystroke instructions are available for beginning users, while additional examples suggest the capabilities of the system in the hands of a sophisticated user. The Organizer's advanced facilities make it easy to structure data in personally useful ways. Address and other lists, appointment calendars, reference systems, and other aids can be readily created and maintained. The program is designed to support personal productivity, not to automate it. Requires an Apple II with two disk drives and 64K of memory. An IBM edition and an automatic telephone dialer option are also available. The basic system retails for \$250. The telephone dialer will be \$75. Each system purchase includes a one year subscription to New Tools, a user newsletter featuring applications of The Organizer.



Inventory Manager is an inventory control software package for the Apple II computer. The Inventory Manager can deal with 2700 different inventory items on a two disk system and 1200 inventory items on a one disk system. It can break the inventory items down to 13 different categories of stock to keep the inventory

#### HOLIDAY SPECIAL **TEST-FLY** \$100 OFF SYSTEM PRICE A \$20 M ON AN A

At the Bethesda Naval Research Center, they've discovered the power of MicroSPEED. The Navy's engineers use this remarkable hardware/software combination to "fly" an advanced fighter aircraft in real time—even making vertical landings on a simulated carrier deck. A "crash" is merely another learning experience, and an opportunity to modify the research aircraft—inside the Apple—to improve tomorrow's combat planes.

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Thomas Tosch Phd., Tosch Information Management.

"The more I use MicroSPEED, the more I love it," James L. Hockenhull, University of Washington.

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well organized. The Inventory Manager can list 99 vendors who supply those inventory items. It issues reports which summarize profit margins, calculate wholesale to retail mark-ups, list back order status, recommend reorder points. print purchase orders, and more. It can also sort by vendor or by stock category. The program can list the 75 best selling items with their profit margins or list the profit margins of the 13 different categories. Owners of small to medium-sized businesses can use the Inventory Manager to check what they have ordered, what they have received, and what is on back order. This program is fast, menu-driven, and user-friendly. \$149.95 from Synergistic Software, 830 N. Riverside Drive, Suite 201, Renton, WA 98055 (206) 226-

Easylab is the total concept in laboratory automation software for the Apple II. Easylab software is ideally suited for industrial and scientific applications. It is powerful, elegant, easy-to-learn with easyto-use commands. Develop applications in minutes, not days. Permits simultaneous data acquisition and processinginterrupt driven. Supports a variety of analog, digital and communications interfaces for the Apple II. Handles data acquisition, experiment control, saving data on disk, plotting data and sending data to a remote computer. System price starts at \$995. Microcomputer Innovations and Applications, 137 RR1, Califon, NJ 07830 (201) 439-3665.

Available now is LOGICSIM: the first low-cost CP/M based logic simulator. With capabilities comparable to industry standard simulators; those costing up to \$50,000. LOGICSIM makes complicated design, test and verification easy. Replaces messy breadboards; fruitless hours on the bench. Lets you focus on your design; not hardware problems. Nine logic states, ability to simulate TTL/ NMOS/CMOS/PMOS logic, three-state, wired-or and transfer gates with propagation delays allows you to verify design, perform spike and race analysis. Macro circuit capability and expandable macro network library plus numerous other features make it a powerful and usable design tool. \$30 for a demo copy of LOGICSIM and a User's Manual. Introductory price \$276. Please specify 8-inch IBM 3740 or 5-inch Apple CP/M. Requires 56 to 64K system. E/Z Associates, 5589 Starcrest Drive, San Jose, CA 95123 (408) 578-8096.

VisiSchedule is a fast and easy way to control projects, level resources, meet deadlines, and beat cost targets. Instantly shows you the critical path among your project's tasks. It allocates all costs and personnel, and specifies earliest/latest start dates, slack times, holidays, pre-

requisites and deadlines for each task. And it produces summaries, time charts, and milestone reports for management. You can actually develop your project as you enter data, investigate tradeoffs between manpower, costs and time. Ask "what if?" . . . add, move, slip or change any task, skill level or cost, and the VisiSchedule program automatically displays the impact of your changes. This makes it a snap to keep schedules and costs current, too. Compatible with other Visi programs, for example, automatically transfer the cost data to the VisiTrend/ Plot program and analyze cause-andeffect relationships. Then instantly plot the results in charts and graphs for better communication. From VisiCorp, at your dealer.

Wiremaster 4.02 is for the design, layout, and construction of electronics hardware. Wiremaster generates network maps, wire lists, cross-references, and checklists. It can handle large industrial jobs as well as small prototypes and hobby projects. Enhancements to this version include location accuracy of 0.001 inch, provisions for twisted-pair and coaxial wiring, and input language expansions that handle special components such as connectors - \$200. Computer club members are eligible for a 50% discount. Updates to earlier verions are

priced at \$25. Complete details can be obtained from Afterthought Engineering, 7266 Courtney Drive, San Diego, CA 92111 (714) 279 - 2868.

Specialized software for deriving individual crop and field estimates of crop development and soil moisture balance is now available for microcomputers. Farm Weather Center's' initial implementation is for disk-equipped Apple II and Apple /// computers. Inputs are simple rain gauge observations and daily readings of maximum/minimum temperature. Data manipulation, processing, and outputs which include graphic displays of results along with summary reports and statistics are managed through menu selections. You can produce charts and reports on the daily progress of soil moisture and and crop development after rain gauge and temperature observations are entered. Prices start at \$125 for one crop either corn, soybeans, or spring wheat while all three are available for \$200. Requires one disk drive and a 48K Apple II Plus or Apple ///. Climate Assessment Technology, Inc., 11550 Fuqua Street, Suite 355, Houston, TX 77034.

Software Dimensions announces three new modules for Apple II users with Accounting Plus II. With Invoices Plus you can inventory items just by entering part numbers; easily invoice non-stan-

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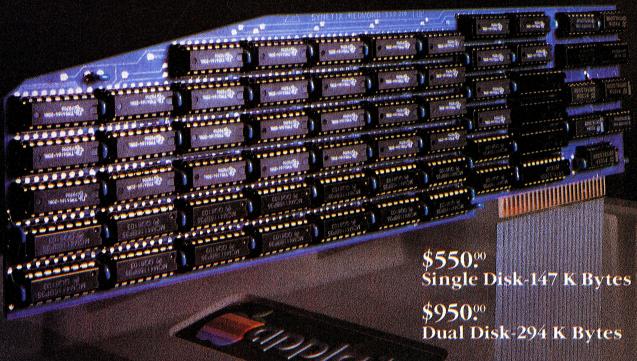
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MicroTLX lets users turn any CP/M computer system into a full-featured Telex machine. With MicroTLX, users can: Directly send and receive Telex and TWX messages, have a direct connection to TWX, Telex, and International Telex, enjoy automatic dialing and retry and unattended operation. You can also send Mailgrams, telegrams, and overseas cables, have immediate access to news, sports, and weather, have immediate access to current stock and bond prices, updated hourly, have immediate access to commodities prices, updated twice daily. Comes with comprehensive, easy-to-understand documentation that makes it extremely simple to use. The entire package retails for \$150 with multi-copy discounts available. Advanced Micro Techniques, 1291 E. Hillsdale Blvd., Suite 209, Foster City, CA 94404 (415) 349-9336.

Weather information software for your personal computer is now available. The Weather Analyst is the most sophisiticated and complete software ever offered for filing and analyzing weather information on today's microcomputers. This menu-driven interactive data manager allows you to store and analyze your own local temperature and precipitation data. Use it with your personal computer to keep the records from your home, farm, school, or local airport then convert those records into useful information. When you have entered the observations of daily precipitation, maximum temperature, and minimum temperature, the software makes necessary calculations then provides complete information about the weather. Among the many reports are a Summary of observed weather for any calendar interval you request; Charts of observed monthly precipitation vs. longterm normals; Monthly temperature and precipitation observed in any prior year

(since 1951). The Weather Analyst includes a data base of the official National Weather Service monthly temperature and precipitation records. These records cover the period from 1951 through the most recent year available. The Weather Analyst - \$59.96. Requires a rain gauge (\$10) and maximum/minimum thermometer (\$20). Available from Climate Assessment Technology, 11550 Fuqua Street, Suite 355, Houston, TX 77034 (713) 484-3603.

#### Communications

Unlike other data transfer programs, Texterm makes no assumptions about the transmission codes of the remote system. Instead these codes can be conveniently customized from the Apple II keyboard. Texterm allows you to enter anything, e.g., Fortran programs, messages, data, etc., and then send it to a remote computer. You can also receive and save any type of program or data. Texterm's powerful text editor supports the familiar cursor commands, including the right-arrow and backspace, to help make editing (on or off line) easy. Applesoft programs can be captured in textfiles, then edited with Texterm. Features a fast machine language search, full or half duplex, underscore, full or partial file merge, 110 or 300 baud rate, parallel and serial printers supported. Require a 48K Apple II with Applesoft in ROM, at least 1 disk drive with DOS 3.3, and a Micromodem II. Simpac, Suite 11-C, 1105 North Main Street, Gainesville, FL 32601.

Logica's new Appletel Disk allows Apple computer users to plug into the Prestel World Videotex Service. The software turns the personal computer into a terminal to retrieve a wide range of international data including regularly updated prices of: 63 commodities from exchanges in the U.S., Europe, and the Far East; 64 currency exchange and IMM rates; 713 U.K. and other stocks. Many other useful databases are also available including: financial/managment information on corporate sectors worldwide; economic indicators and statistics on most industrialized countries; locations of 22,000 deepsea ships "bound for" or "in port"; bookings at over 400 hotels in the U.K and elsewhere; airline schedules cover 50 carriers, with reservation facilities on major airlines; electronic messaging to other Prestel users; international news, sports, and weather. With the Appletel Disk, the Apple, and a Hayes micromodem, the user simply accesses a local telephone number, enters a password, and retrieves any of the more than 220,000 pages in the Prestel database. For further information, contact Logica/BVT, 666 Third Avenue, New York, NY 10017 (212) 599-0828.

#### Education

New Milton Bradley Educational Software makes your kids think. Clean, clear graphics make the lessons easy to follow, and engaging special effects make the learning fun. Just slip in the diskette. Students follow simple instructions; they don't need tutoring to operate the program. Programs progress through a range of skill levels. Each unit is organized by specific topics, to adapt easily to your lesson plans. A streamlined management system shows you at a glance which skills each student has mastered and which areas need more work. Just follow the easy steps in our accompanying Teacher's Guide. In addition, there are reproducible activity sheets keyed to each skill. Now you can give more individual help to each student - on or off the computer. Choose from seven units: Division Skills; Mixed Numbers: Decimal Skills: Vocabulary Skills (prefixes, suffixes, root words); Vocabulary Skills (context clues); Punctuation Skills (commas); Punctuation Skills (endmarks, semicolon, colon). Available in 1983: Ratio and Proportion, Percent, Building Better Sentences, Reading Comprehension. Each is only \$44.95 for the Apple II computer. Milton Bradley, 443 Shaker Road, East Longmeadow, MA 01028 (413) 525-6411, Ext. 2618.

Know Your Apple is a new program for learning about your Apple in a fun way. Turn on the program, and enjoy your computer instantly. Amaze and delight your friends: whether you're a new or long-time Apple owner, you can astonish your friends by letting them sit right down and enjoy your Apple too!. Gain insight about your Apple...how it works, and what it can do for you. Gift packaged, it is an excellent gift for any Apple owner3 for personal gifts, birthdays, and Christmas giving. The box is a unique miniature replica of the Apple computer at no extra charge. \$34.95 at your local dealer or contact Muse Software, 347 North Charles Street, Baltimore, MD 21201 (301) 659-7212.

ATI produces interactive training programs for best selling software packages. Menu-driven software delivers learning through hands-on practice. Diskette courses contain a general introduction and periodic refresher courses, and usually can be completed in less than 45 minutes. An accompanying Users Handbook provides a conveniently-referenced, hard copy version of the same information. ATI's interactive training products are

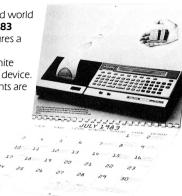
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Get the play by play on two dozen of the most popular home computer games. THE SURVIVAL KIT FOR APPLE COMPUTER **GAMES** covers games in four categories— Adventure, Arcade, Fantasy, and **Strategy.** For each game you'll find detailed, fun-to-read descriptions, winning strategies, tips from experts, and a quality rating. It's a witty, upbeat book. Not too sophisticated for beginners, vet packed with plenty of challenges for avowed computer game freaks. All the games run on an Apple, and hardware specs tell you at a glance what other machines can be used (many games run on the Atari 400 or

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#### **DAY BY DAY**

Stay up-to-date in this fast-paced world with THE COMPUTER ERA 1983 CALENDAR. Each month features a color photo of state-of-the-art equipment plus a black-and-white photo of a historical computing device. Computer-related historical events are cited and dates of important worldwide computer conferences are included for each month. The 9" x 12" large-size format means that there's also plenty of room for your own personal input. Spiral bound. Available now.



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targeted towards the professional user, and are available for \$75 each. They are: D.B. Power for dBASE II (IBM or CP/M), Power Pack for WordStar (IBM or CP/M), Plan-Power for SuperCalc (IBM or CP/M), BASIC-Power for MBASIC (IBM or CP/M), ATI-Power for CP/M. American Training International, 3800 Highland Avenue, Suite 300, Manhattan Beach, CA 90266 (213) 546-4725.

Registration allows teachers to select students for classes by sorting them according to their choices or by random sorting. If the students are sorted by choice, they are allowed to pick their first, second, and third preferences. The names are shuffled, and then the choices are matched with classes until all are filled. Any students who are absent are given zero's as choices and are placed in classes after everyone else has been sorted. Updating of class lists is easy, and multiple printouts of classes can be distributed, so there will be no more erroneous class interruptions. Other programs available are Special Report to Parents enabling the teacher to personalize special report notes to parents \$29.95; Honor Roll Sort \$19.95, Composition Correcting Package allows a teacher to individualize student assignments according to student performance in writing compositions. The student compositons are not typed in. Instead, the teacher will hit numbers for certain

types of errors. The computer will keep track of the errors and the line or paragraph that they were made in. Automatically prints out all the individualized worksheets while the teacher goes to another job \$69.96. For further information contact: Disk Depot, 731 W. Colorado Avenue, Colorado Springs, CO 80905 (303) 473-

No Frills LOGO Package for the Apple II and Franklin Computers includes three disks - 2 disks each contain full authorized M.I.T. copyrighted version of LOGO. A third disk contains invaluable M.I.T. Applications programs including Dynatrack, Rocket, Animals, The Sound Editor, The Shape, and The Logo Assembler. The M.I.T. Technical Manual is included. Price of the entire package is \$99.00. Krell Software Corp., 1320 Stony Brook Road, Stony Brook, NY 11790 (516) 751 - 5139.

#### **Financial**

Market Maverick provides immediate investment counsel and is not just another device that raises more questions than it answers. Utilizing shorter forecast time horizons, Series 900 has a long history of excellent performance even under extreme market conditions. With fewer inputs, it is user friendly - yet it

answers questions asked from many angles and points of view. Stock data provided for immediate use on over 900 stocks. It is for the serious investor or stock broker - \$145. Requires 48K Apple II or II Plus, DOS 3.3 and Applesoft in ROM or 16K RAM expansion. Financial Software, Inc., 11401 Westridge Circle, Chardon, OH 44024 (216) 338-6811.

B.I.S. is more than just a general ledger . . . it's a business information system that can produce selected business activity reports immediately. Machine language saves time, accepting 3000 entries a day as fast as you can type. Every entry is saved for selective analysis. Instantaneous posting - 40 split entries can be completely posted in less than 20 seconds. Immediate reporting - within four minutes of any entry, a complete Balance Sheet, P&L, or Detailed Selective Analysis Report reflecting that entry can be printed and reviewed. Define your own Journal Names, Account Prompts, Activity Codes, Custom Report Generators, Account Ranges and Descriptions. A single B.I.S. General Ledger handles three completely separate sets of books with consolidating capabilities. A hand-holding tutorial outlines every key stroke. \$295 at your local Apple dealer or contact John Broderick, CPA, Broderick & Associates, 8635 Shamrock, Dallas, TX 75238.

The Business Bookkeeping System is a new cash basis accounting system for the small business. This set of menudriven ledgers features more rapid data entry than found in conventional accrual systems. Three ledgers provided are customer activity, vendor activity, and employee activity. Provides a complete general ledger and choice of using your own chart of accounts or a format supplied with the system. Customizes all ledgers to fit the user's individual business needs. Makes standard entries and journal entries, including the options of adding, changing, removing, printing and posting entries, providing an excellent audit trail. Includes a security password feature for accessing employee information, as well as a special sort key enabling the user to group customers, vendors and employees by his own categories. Prints both summarized and detailed reports, as well as unposted and posted versions of some reports. Includes such useful reports as: trial balance, income statement, balance sheet, aged receivables, and revenue analysis; customer, employee and vendor lists; disbursements and wage withholding registers. Includes very thorough documentation with easy-to-use instructional graphics, a complete reference section with a basic "Using The Computer" section for the new micro user, helpful Menu Map and other features. Compatible with other DAKIN5 products. Requires an Apple II, Apple II Plus or Apple /// in emulation mode, 2 disk drives, and printer. Soon to be released in CP/M for IBM and Xerox. DAKIN5 Corporation, P. O. Box 21187, Denver, CO 80221 (303) 426-6090.

Investment analysis programs include Stock-Focus - find out how low is low and how high is high. Using capital structure and performance data, Stock-Focus objectively calculates the underlying value of a stock. The system was first developed by the management science department of a major money center bank and is now in use by investment advisors, trust companies and brokerage houses. On your screen, Stock-Focus will plot an estimate of lowest value, highest value, and the current price -\$159. P.A.C.E. (Prompt Accurate Cost Estimator), previously available for the Apple II, is now available for The Apple /// and the IBM PC. P.A.C.E. is a very flexible general purpose estimating product which aids an estimator in appraising and estimating equipment, labor, material and general project needs. P.A.C.E. substantially reduces estimating time while producing more accurate estimates. It is particularly suitable for repetitive-unit cost estimating, which is where items are constructed in different ways from a common base of units or parts (e.g., houses built from the same

raw materials and labor but constructed to various floorplans or designs). P.A.C.E. saves estimate details to diskette for later recall and modification as necessary in addition to providing such features as price mark-up capability, flagging of outdated costs, automatic estimate updating when prices change and the capability for user defined calculations. Suggested retail price is \$395. P.A.C.E. requires a 64K Apple II or 128K Apple /// with Apple Pascal or a 64K IBM PC with the IBM UCSD P-System. All versions require a 132-column printer. Contact your local computer dealer or High Technology Software Products, Inc., P. O. Box 14665, 2201 N.E. 63rd Street, Oklahoma City, OK 73113 (405) 478-2105.

Tickertec, the sophisticated on-line personal stock market monitor and quotation system without a 15-minute delay, is now available on the Apple II computer. This system allows direct connection to the low-speed tickertape line from the New York or American Stock Exchanges. Users may track 150 or more stocks of their choice and monitor the last 10 trades and tickertape reported volumn by simple keyboard command. A limit minder may be set for each of the stocks monitored and a visual and audible signal will be given when one of these limits is breached. Optional features allow Apple users to monitor daily highs and lows, receive uptick and downtick volume inputs, track big block trades, detect stock movements, receive all four Dow Jones averages. create printed periodic reports of selected securities, and review stock market reports to name a few. The package utilizes the Microsoft Premium Softcard System and the Mountain Computer CPS Multifunction Card. Software prices start at a onetime charge of \$1,950. The optional features price list is available from the distributor along with a free descriptive brochure. A special introductory software and hardware offer includes the above plug in boards and all cables for a price of \$2,995. Exchange fees are extra. Tickerscreen, the stock market bulletin board, is available providing a demonstration to computer users who have communications capabilities. Call (212) 986-1660 from 5:00 PM to 9:00 AM weekdays and 24 hours on weekends to reach the computer system. Max Ule & Company, Inc., 6 East 43rd Street, New York, NY 10017 (800) 223-6642.



The Investors Toolkit is a collection of more than thirty sophisticated programs available either separately or at substantial savings in a choice of four packages. Program prices start as low as \$29.95, packages as low as \$149.95. Any package may be upgraded for just the price difference. The programs do things most of us have never even heard of before. Such activities as plotting Fibonacci spheres, MLR Line, price channels, trendlines and computer optimization of trading systems are not in your everyday Apple owner's bag of tricks. Many seasoned Bulls and Bears claim to have paid for their persoal computers many times over on the basis of extra information fed to them by their Apples. Send \$5 for a demonstration disk and complete information to Omega MicroWare, 222 S. Riverside Plaza, Chicago, IL 60606 (312) 648-1904.

Agri-Ledger is a double entry accounting system for agricultural operations, designed for the Apple II and ///. This menu-driven program provides for income statements and balance sheets, budget reports, comparison of performance against projections, enterprise analysis and report combinations for up to 26 different operations with up to 99 different enterprises on each, quantity fields, Schedule F information, yearly history, and much more. Cash flow templates are included for both farm and personal items. The documentation is detailed and easy to understand. Program backup disk is included. Demo package is available and comes with full documentation - \$30 (Price can be credited towards purchase of full program). SBCS provides a lifetime warranty, free program updates and replacement of damaged disks, and friendly customer service. Additional agricultural modules which integrate with Agri-Ledger will be released at a later date. Agri-Ledger - \$395. Small Business Computer Systems, 4140 Greenwood, Lincoln, NE 68504 (402) 467-1878.

BankDisk is a complete series of programs specially designed for banks and developed through extensive experience in the industry. BankDisk gives you the information you need when you need it. The programs not only work in the daily routines of bank operation but serve as valuable tools for quickly responding to customer inquiries. Every program is designed to be easy to use and easy to understand. No previous computer experience is required. Each BankDisk package also contains a complete, easy-to-understand manual that clearly explains every BankDisk function. BankDisk software products include: IA Proposals; Loan Accrual; General Financial Calculator; Fixed Asset Accounting; Repurchase Agreements; Safe Deposit Box Accounting; Credit Analysis; Asset and Liability Management; Loan Document Processor. Minimum hardware required includes an

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The Offer. For Apple II® Users—And Other Users, Too. If you're looking to add mass storage capacity to your Apple II without looking for the rich uncle to fund the enterprise, look no further. \$999 is all you'll pay for our Intelligent Disk Assembly, which includes a stateof-the-art Winchester disk drive and an advanced Xebec single board controller. Add a few hundred dollars more and you'll also get the components to complete the subsystem. A highly reliable 115V/230V power module. A cable set. A host adapter personality card. Apple DOS, CP/M® or Pascal software and a component cabinet. Installation instructions and documentation make assembly simple. More important, it makes you a richer person because you do it yourself and save up to half the cost of comparable storage products.

Even if you have CPU attachments other than the Apple II, we'd like to hear from you. Xebec is currently developing a whole range of small computer interfaces—and we may be able to plug you into an offer as wild and crazy as this one by the time you get to the toll-free numbers at the bottom of this ad.

The Company Behind The Offer. Xebec.

Xebec, an MŚC Company, has been in the microcomputing business for over a decade now. In fact, we're currently the largest supplier of controller products and technology in the business, numbering companies like Hewlett-Packard and Lanier among our microcomputing customers. This unique opportunity for us to offer these mass storage subsystem components is limited. Therefore, we urge you to see us at the Applefest® in Śan Francisco, November 18-21; or fill out and return the coupon in this ad.

Please send me \_\_\_\_

Intelligent Disk Assembly(s), which includes the Winchester rigid disk drive and the single board controller. I understand that all accessories ordered for the disk assembly

understand that all accessories or will correspond to the number of disk assemblies ordered. I further understand that if I order the entire disk assembly package (including one Apple software program), I am entitled to that package for just \$1299 as opposed to the individual component price of \$1347.50.



Intelligent Disk Assembly		
⊠ Drive and controller	.\$9	99.00
Accessories for Intelligent Disk Assembly	,	
Cable set	.\$	65.00
Host adapter personality card	.\$	75.00
Power module	.\$1	125.00
Apple DOS software	.\$	8.50

 ☐ Power module
 \$125.00

 ☐ Apple DOS software
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 ☐ Apple CP/M software
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 ☐ Apple Pascal software
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 ☐ Cabinet
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 ☒ Complete installation instructions

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Apple II and Applefest are registered trade and service marks of Apple Computer, Inc. CP/M is a trademark of Digital Research, Inc.

Apple II or Apple II Plus with 64K, one disk drive with DOS 3.3, a video monitor, and an 80-column dot-matrix printer. Financial Systems, Inc., P. O. Box 2012, Kearney, NE 68847 (308) 237-5885.

AgDisk software lets you put Apple computers to work in the analysis of your farming operation. You can examine countless managment alternatives and choose based on hard facts, not just quesswork. No previous computer experience is required; each program provides step-by-step instructions. Each AgDisk package also contains an operations manual that explains every program function. Programs available: Farm Accounting Package \$600, manual only \$29.95 (requires 2 disk drives): Financial Management Series One (Land Purchase Analysis, Depreciation Schedules, Farm Profit Analysis, Loan Cost Calculator and Interest Income Calculator) \$140, manual only \$14.95; Machinery Management Series One (Operation Cost Estimations, Ownership/Hire Comparison, Lease/Buy Comparison and Loan Cost Calculator) \$140, manual only \$14.95; Corn/Soybean Management Series One (Grain Storage Decisions, Harvest Loss Calculations, Crop Yield Calculator, Field Population Calculator and Planter Calibration Calculator) \$140, manual only \$14.95; Market Charting Package \$450 (requires 2 disk drives), manual \$29.95. Enterprise Extension Module increases the capabilities of the Farm Accounting Package, allowing you to determine the net profit and loss for specific crop, livestock and other enterprises \$150. Market Access Package lets you know up-to-the-minute commodity prices. Your computer can even signal you of significant market changes (requires a modem) \$150, manual only \$14.95. AqDisk VisiCalc Templates include Financial Statement, Depreciation, Checking Account, Commodity Worksheet, Agricultural Costs, Cash Flow, Personal Budget, Interest Calculations and Loan Amortization \$75, manual only \$14.95. Harris Technical Systems, 624 Peach Street, P. O. Box 80837, Lincoln, NE 68501.

Reveal is a cost-effective, easy to use method of managing current and prospective clients. Developed by experts in the brokerage industry, it will provide stockbrokers with total client and portfolio management. The system is available to Apple II and /// users and is geared toward those with no prior computer experience. An important feature of the system is the automatic pricing capability available through various pricing services. Users have the option of receiving daily price information for all commodities, securities, options and bonds from every major exchange. The cross reference ability of Reveal allows a broker to ask for information by any criteria — including client, date or security. It is possible to ask which clients own a specific product and quantity. It is also possible to find those individuals who meet certain specific requirements. For example, all those who live in New York, have a net worth of \$1,000,000, are in the 52% tax bracket and are interested in growth stocks. Reveal is backed by a full time support team and customer hotline. The complete system is priced at \$1,250. Reveal Software, Inc., 6 Chelmsford Drive, Muttontown, NY 11545 (516) 626-1166.

Investment analysis programs include Stock-Focus; find out how low is low and how high is high. Using capital structure and performance data, Stock-Focus objectively calculates the underlying value of a stock. The system was first developed by the management science department of a major money center bank and is now in use by investment advisors, trust companies and brokerage houses. On your screen, Stock-Focus will plot an estimate of lowest value, highest value, and the current price - \$159. Real-Focus accounts for amortization, debt, income, operating expenses, taxes, depreciation, and cost flows for both after-tax holding and the results of sale. With Real-Focus you can analyze any potential investment from a sngle building project to a complex timephased planned unit development - \$149. Centennial Software, 410 17th Street, Suite 1375, Denver, CO 80202 (303) 595-9193.

#### Games/Simulations

Threshold is a 'shoot-em-up' space game that features a ship with a hyperwarp driver which will slow time and speed for other objects. The lasers are very sensitive to heat, so if you fire them too quickly you will have a temporary power loss. There is also a limited fuel supply. You can refuel in mid-mission, but you must reach the rendezvous point to do this. Superb graphics and sound effects. Requires an Apple II with 48K and DOS 3.2 or 3.3. At your local dealer or On-Line Systems, 36575 Mudge Ranch Road, Coarsegold, CA 93614.

Zork II takes up where Zork left off. Here you'll meet the Wizard of Frobozz, a formidable foe who'll appear randomly to thwart your efforts at solving the many riddles in the game. The adventure is complete with volcanoes, dragons, princesses, unicorns and a collection of other creatures. This is a totally text game, however, the descriptions are fascinating and detailed. Zork II is an adventure for master adventures; those of you who are new to adventuring may find the game

more of a challenge than you bargained for. \$39.95 at your local dealer or contact Infocom, 6 Faneuil Hall Marketplace, Boston, MA 02109.

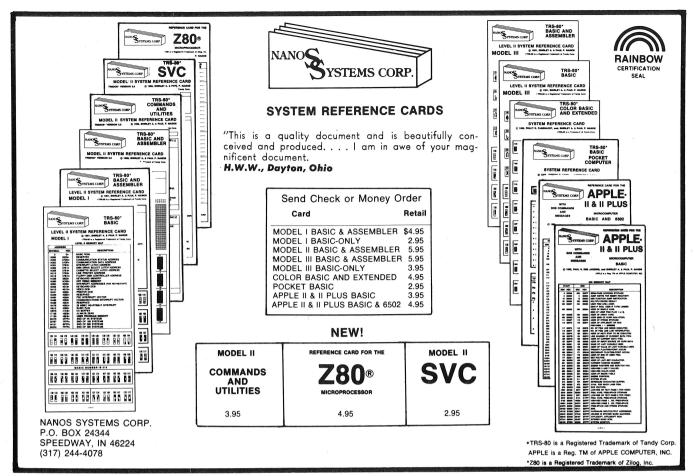
In Tumblebugs, you are trying to get through a complex maze, eating white dots along the way, while eight tumblebugs chase you. The mazes are difficult and the tumblebugs relentless. The program creates a random maze each time you play so you can't memorize the paths. The animation is very good and offers quite a challenge. \$29.95 from your local dealer or contact Datasoft, 19524 Business Center Drive, Northridge, CA 91324.

Swashbuckler is a real-time animated duel between you, who controls the swordsman, and various and sundry surly, wretched, and generally vicious computer opponents (pirates, snakes, wooden-legged deck hands, dogs, etc.). The movements of your swordsman are controlled by the keyboard and are easy to master quickly. You are first confronted by one pirate, but he proves to be not much of a challenge and soon you have opponents on both sides. As you clear each level, you progress through a pirate ship with different and more challenging opponents. \$34.95 from your local dealer or contact Data-Most, 9748 Cozycroft Avenue, Chatsworth, CA 91311.

Hadron will provide you with the thrill of flying a space fighter and going into battle with it. The object of the game is to track enemy fighters back to their star base and destroy the base. After destroying this base, your fuel and ammunition are replenished and you move to the next level of difficulty. The view as seen from your spacecraft is spectacular and in color. \$34.95 from your local dealer or contact Sirius Software, Inc., 10364 Rockingham Drive, Sacramento, CA 95827.

1982 version IFR Simulator features a lifelike panel that simulates the airplane instruments used for flying and navigating in clouds. Fly IFR landings, patterns, and cross country in several areas of the United States. High-Resolution color graphics display real-time instruments and window view. This simulation will have you flying in no time. \$50 at your local dealer or contact Programmers Software, 2110 N. 2nd Street, Cabot, AR 72023 (501) 843-2988.

A full implementation of the original ELIZA program is now available. Created at MIT in 1966, ELIZA has become the world's most celebrated artificial intelligence demonstration program. ELIZA is a non-directive psychotherapist who analyzes each statement as you type it in and then responds with her own comment or question - and her remarks are often startingly appropriate! Designed to run on a large mainframe, ELIZA has hitherto been unavailable to personal computer



users except in greatly stripped down versions lacking the sophistication which made the original program so fascinating. This new microcomputer version possesses the full power and range of expression of the original and is being offered at an introductory price of \$25. And if you want to find out how she does it (to teach her to do more) they will include the complete source program for only \$20 additional. Available a 5-1/4-inch CP/M for Apple II equipped with Z-80, or 5-1/4-inch for 48K Apple II with Applesoft ROM and DOS 3.3. Also available for IBM and Osborne and all 8-inch CP/M-based computers. Artificial Intelligence Research Group, 921 North La Jolla Avenue, Los Angeles, CA 90046 (213) 656-7368 or 654-2214.

Here are four new games for younger children. Facemaker, for kids ages 4-8 helps children improve memory and concentration and provides familiarity with the computer. Story Machine lets children ages 5-9 write their own stories and see them acted out on the screen. It helps children learn to write correctly and acquaints them with the keyboard. Snooper Troops I detective series gives your child mysteries to solve. As a Snooper Trooper, your child will have to do some daring detective work, including crawling through dark houses and talking to mysterious agents. Designed for kids ages 10

and older, Snooper Troops II helps children learn to take notes, draw maps, classify information, and develops vocabulary and reasoning skills. From Spinnaker Software: available at your local

Star Maze is a tour-de-force of Hi-Res animation and graphics. Yours is a desperate mission - to find and recover the power jewels hidden in the maze before your fuel runs out. Star Maze features animation effects never seen before on an Apple as well as the fine touches that mark it as a Sir-Tech game. Features a huge 18 color multi-directional maze with 16 maze levels; playable by keyboard, paddles, joystick or joyport. High scores are saved to disk. \$34.95 at your local dealer or contact: Sir-Tech Software, Inc., 6 Main Street, Ogdensburg, NY 13669 (315) 393-6633.

Frogger by Sega is the official arcade version running on your Apple computer. As the frog, you must cross a dangerous highway loaded with cars, trucks and other vehicles. Then you have to cross a log-filled river while hopping from logs to the backs of turtles as they submerge and reappear. Fast, exciting action. Requires Apple II with 48K and DOS 3.3. \$34.95 at your local dealer or contact Sierra On-Line, Inc., 36575 Mudge Ranch Road, Coarsegold, CA 93614 (209) 683-6858.

Space Vikings is a science fiction adventure in deep space. The galaxy is in rebellion. You command a Federation starship and your Viking troops are ready for battle. Depart on the most exciting experience you've ever had with your Apple II. Superb 3-dimensional, real-time space travel in full color. Missiles and lasers are at your disposal. Orbit 3-dimensional planets and have the 'computer' display vital information about your opponents. Requires an Apple II, disk -\$49.95. At your local dealer or contact subLogic Communications Corp., 713 Edgebrook Drive, Champaign, IL 61820 (217) 359-8482.

Wayout is a game so exciting it can make a blind man talk, a deaf man see! Step right up and put on these wayout protective goggles. Good! Now take this compass and mapmaker and step inside this hallway. Excellent! OK now, I'm gonna lock you inside and see if you can find your 'Wayout'. This is the first 3dimensional maze game of its kind with 26 different adventures to lose yourself in. Wayout requires an Apple II or II Plus with 48K and one Apple disk drive and is playable with keyboard, Apple-compatible paddles or joystick or with an Ataritype joystick attached to a Sirius Joyport. At your local dealer or contact Sirius Software, 10364 Rockingham Drive, Sacramento, CA 95827.

Rear Guard is loosely based on the arcade game, Defender. The object of the game is to survive by preventing the ground-based enemy from collecting energy pods that are dropped by destroyed alien fighters. In the game its you against an armada of alien ships of different types. Hit passing satellites to recharge your fuel or shields. Using a joystick or keyboard, you swoop in close to the surface of the planet and fight off the enemy. Be careful not to fly too low or you might crash into a mountain. Fastmoving and colorful, Rear Guard also saves the top ten scores and player names. Requires a 48K Apple and Disk -\$29.95. At your local dealer or contact Adventure International, P. O. Box 3435, Longwood, FL 32750.

Kamikaze is the first in a series of arcade games planned for release by Hayden Software. The theme is simple. You, the player, control a ship on patrol, presumably in the South China Sea. Two torpedo planes fly overhead one from left to right and the other from right to left at two different altitudes. You launch high speed surface-to-air missiles against your relentless enemy. Kamikaze pilots swoop down from the top of the screen, changing course as you do, ever heading toward your vulnerable patrol boat. Your missiles are effective against the Kamikaze planes, but in order to use them you must get under the plane first. It's not easy! Fast and in machine language. Requires a 48K Apple with Disk drive and paddles -\$34.95. At your local dealer or contact Hayden Software, 50 Essex Street, Rochelle Park, NJ 07662.

Snake Byte starts out politely. You (the snake) may accept or decline the presence of the Perilous Purple Plums who haphazardly bounce sround the screen. Next, simply concentrate on slithering around the screen, chomping down apples as you go. There are ten apples per screen. Sound easy? Every time you devour an apple your snake grows longer. If you don't creep quickly enough, penalty apples will appear. Eating more apples will make your snake even longer and faster, and soon your head doesn't know what its tail is doing. If your snake's head bumps into a wall or a Perilous Purple Plum, or even itself, you break your fangs! But, if you're a snappy snake and scarf up all the apples without bumping into anything, a magic door materializes at the top of the screen and you're off to more mazes. Requires an Apple II or II Plus computer with 48K and one Apple disk drive - \$29.95. At your local dealer or contact Sirius Software, Inc., 10364 Rockingham Drive, Sacramento, CA 95827 (916) 366-1195.

Lazer Silk is a game, in which you are a spider defending your web from annoying bugs and deadly insects. To keep your web from being torn apart, you must bundle (capture) bugs as soon as they fly into your web and land. Using a joystick or the keyboard you can maneuver around your web while catching the bugs. Some. however, are deadly to you and you cannot touch them. Pressing the paddle button you can fire your weapon, Lazer Silk, and take care of these marauders. Scavenger ants and beetles will scamper around and try to steal the bundles for which you have worked so hard. Superb graphics and color - \$29.95. At your local dealer or contact Gebelli Software, Inc., 1771 Tribute Road, Suite A, Sacramento, CA 95816.

Lovers or Strangers, is a computer game with a serious side. It is a compatibility evaluator that tells two people how "right" they are for each other, and how likely they are to have a successful relationship. Lovers or Strangers explores a couple's likes and dislikes, philosophies and lifestyles in seven major areas of compatibility. The program was written by Stanley Crane, president of Alpine Software, and two leading psychologists in the Colorado Springs area. Crane is also the co-author of both the DB Master program (marketed by Stoneware) and the PAL reading program (marketed by Universal Systems for Education). Requires an Apple II Plus, 48K, one disk drive - \$29.95. Alpine Software, 2120-E Academy Circle, Colorado Springs, CO 80909 (303) 591-

Firebug, by Silas Warner, puts you, the Firebug, at the top of a five-story maze, complete with burning fuse, gasoline cans, and the dare to burn down the floors one at a time. Requires lightning-fast manual response and the ability to get out of tight corners, increasingly challenging mazes, and to outrace shorter, faster burning fuses. The screen provides eyecatching graphics of gas cans exploding in full color and walls disintegrating as they burn up, while the Firebug snakes through the hallways. Fantasy sound effects heighten your involvement as fire crackles and a constant tac-toc reminds you of time running out. Firebug for the Apple II or Apple II Plus computer with 48K and disk drive retails for \$24.95 and is available from MUSE, 347 N. Charles Street, Baltimore, MD 21202 (301) 659-

Frazzle puts you in the future. The scene begins in space, with you commanding a Frazzle Force Ship that is suddenly under attack by Beasties. Colorful screen graphics show your position on the ship's radar screen, the force field surrounding you, and odd shaped Beasties zooming in. Your ammunition is

pulsating Energy Probes, which beep and flash as you release them on the screen. You must stop the Beasties while avoiding collisions with them, with the walls of the force field, and with your own ammunition. Sound effects include the electronic hum of a radar monitor and the squish of Energy Probes dissolving the Beasties. Frazzle is for the Apple II or Apple II Plus computer with disk drive and Applesoft ROM. It retails for \$24.95 and is available from computer stores nationwide and from Muse, 347 N. Charles Street, Baltimore, MD 21201 (301) 659-7212.

More than just a game, Multiploy is good practice for your skills in four basic arithmetic operations. Once you tell your computer what level of difficulty you are ready for (there are three levels), you tell the computer which skill you want to work on, selecting from addition, subtraction, division, or multiplication. The game automatically begins to enter problems on your playing screen, such as '4 × 9, or '13 + 43'. It is up to you to answer the problems correctly as they start moving down the screen. If you are correct in your answer, you will destroy the problem and move on to the next one. But don't stop now, there are many other problems coming at you - and you must answer them before time runs out! While the game is ideal for children 4 to 14, adults of all ages will enjoy the challenge of the game. The game will record your highest score - so you can try to break your own record, or someone else can! \$19.95 from Reston Publishing Company, 11480 Sunset Hills Road, Reston, VA 22090 (703) 437 - 8900.

#### Graphics

The Animator is a system for producing animated "film" strips. The user enters only key frames, then The Animator calculates the in-between frames. The key frames are easily entered - either visually, numerically or from a library. Demo includes a ballet sequence with the ballerina having 12 independently moving body parts. The 57 page manual includes 3 tutorials and full instructions for creating, editing and incorporating strips into user's programs. Included is a system for creating shapes and shape tables that can be used independently of The Animator - \$49.95 plus \$2 for postage/handling. To see for yourself how the animated strips look after the in-between frames have been inserted, send for a Demo diskette. Please include \$6 to cover the cost of the diskette. postage and handling. Balbesoftware Systems, #6 White Plains Drive, St. Louis MO 63017 (314) 532-5377.

Sneakers is one of the most popular Apple computer games ever! Players and critics alike concede that Sneakers' popularity is based on its seeminaly endless variety of challenges. The game features eight separate attacks from some of the most animated and colorful characters to ever attempt to stomp you into submission. Get ready for wave after wave of Sneakers, Cyclops, Saucers, Fangs, H-Wings, Meteors, Scrambles and Scrubs. There are five levels of difficulty, making Sneakers forty games in one! \$29.95 at your local dealer or contact Sirius Software, Inc., 10364 Rockingham Drive, Sacramento, CA 95827 (916) 366-1195.

Tharolian Tunnels is an arcade action game written by Rod Nelsen for The Apple II and Apple /// computers. Exciting, colorful play has you descending into a tunnel after you have broken through the initial invader wave. As you descend you must not crash into the tunnel walls. Once through that tunnel you must fight further perils and tunnels. As good as some of the best arcade type games around. Other games include Vegas Video, a Hi-Res card game with incredible graphics for the Apple II, Apple /// and Atari computers; Space Spikes, an arcade action game for the Apple II and Apple /// computers. The Software Farm, 3901 South Elkhard Street, Aurora, CO 80014 (303) 690-7559.

#### Languages

BASIC/Z is a native code compiler for the CP/M operating system. With BASIC/-Z, sophisticated I/O is supported at the level of source code. Absolute cursor addressing (for the CRT and printer), reverse video, blinking fields, erase to end-line and end-screen, clear screen, and more. Supports screen oriented editing of console input at run-time! Functions include non-destructive cursor movement, character deletion, choice of insert/change modes and formats. Offers an assortment of data types from floating point numerics (1E-61 to 1E+61) and choice of precision from six to eighteen digits. All floating point math is performed in BCD, avoiding 'round-off' errors common to binary systems. Advanced file handling supports sequential read/write capability and random files with sequential or random access. BASIC/Z generates executable object code, so that source programs need never be distributed. Additionally, the Serial function can limit a program to execution on a single system! Sorts 2,000 elements in two seconds since a SORT verb is part of the language. Structure your programs with nested DO/-UNTIL, WHILE/WEND, FOR/NEXT, IF/ THEN/ELSE constructs. Absolutely no royalties nor run-time charges of any type. The complete package includes the compiler, the RUN/Z run-time module, the TR/III translator (to translate programs and data files from the MDOS operating system), the hardware configuration utility, and extensive documentation – \$345. Systems/Z, Inc., P. O. Box 11, Richton Park, IL 60471 (312) 481-8085.

Okara is a breakthrough in operational technology for CP/M systems. Okara lets you create command scripts to replace the boring, repetitive, error-prone keyboard dialogs normally required by CP/M and the programs that run under it. With Okara the machine presents any personality you design, from simple cryptic commands that do it all to elaborate, hand-holding menus. Okara is a must for anyone who uses CP/M, and a supermust for system integrators, software developers, office managers, teachers, etc. For 8080, Z-80 or 8085 CPU, CP/M 2.2 Operating System. Kiai Systems, P. O. Box 11461, Oakland, CA 94611 (415) 654-8671.

The Nevada PILOT language for CP/M-based computers is designed for interactive applications such as data entry, programmed instruction, and testing. Among its many features are an integrated full-screen text editor and the ability to drive video-tape recorders, voice-response units, and other optional equipment. With Nevada PILOT, someone with no prior compu-

#### Supercharge Your APPLE II\*



The Axlon RAMDISK<sup>TM</sup> 320K Memory System for the Apple II and Apple II Plus\* provides access speeds never before available. The Axlon memory system is designed to interact with Apple DOS 3.3\* and Apple Pascal 1.1\* like two standard floppy disk drives while delivering the lightning fast access speeds of RAM memory. This also leaves 32K of RAM for advanced programming techniques. The interface board is slot independent and draws no power from your Apple. The rechargeable battery system built into the unit provides three hours of backup in the event of a power loss. Drop by your local Apple dealer or contact Axlon, Inc. for more information.

- \* Trademark of Apple Computer, Inc.
- \* Pascal is a Trademark of U.C.S.D. Regents

- Plug-in compatibility
- 320K bytes of RAM (200NS) memory designed to function like two 35 track floppy disk drives
- Compatible with Apple DOS 3.3 and Apple Pascal 1.1
- Same size as the Apple Disk II\* Drive
- Invisible memory refresh even with the Apple turned off
- Rechargeable battery system built-in to provide 3 hours of auxiliary power
- Slot independent interface board draws no power from your Apple
- All firmware is in static RAM on the interface board
- Includes software for diagnostic, fast load and copy routines, and business applications



170 N. Wolfe Road, Sunnyvale, CA 94086 (408) 730-0216 ter experience can develop dialog programs in an hour or so. Requires 32K bytes or RAM, one disk drive, video display and keyboard. It will run on Z-80 equipped Apples and many other CP/M-based systems – \$149.95. Includes a floppy disk and a manual, and is available from Ellis Computing, 600 41st Avenue., San Francisco, CA 94121 (415) 751-1522.

Terrapin Logo from MIT is easy to use: write graphics programs from the start (by using simple commands like Forward, Left, and Penup). Create your own vocabulary of commands and use it to build complex programs. Handles floating point and integer arithmetic. Comes with fullyintegrated Screen Editor, for programs and text. Powerful programming tools (like Procedures, Recursion, and Lists) encourage structured thinking. Saves pictures to disk - prints pictures inexpensively. Assembly language interface capability. Available for networking systems. Tutorial Manual takes beginners step-by-step. Also available are seminars for teachers and Apple Users groups, a Hotline giving you instant access for solutions to any of your questions and books on Logo and the Turtle Robot in education. Available at most computer stores worldwide or contact Terrapin, Inc., 380 Gree Cambridge, MA 02139 (617) 492-8816.

P-LISP just got better! LISP (for List Processor) was developed at MIT in the late 1950's. LISP's applications include artificial intelligence, natural language processing, robotics and educational and psychological programming. LISP's unique features give the programmer the power to develop software that goes far beyond the limitations of BASIC or Pascal. Features floating point math, Hi-Res graphics, property lists, function trace, ONERR error trapping and user definable memory allocation. In use at hundreds of colleges and by many hobbyists around the world, P-LISP has been acclaimed by experts in the feld as the best implementation written for the Apple II. Now you can get the newly released Version 3.1 at a reduced price. The P-LISP Package includes: P-LISP 3.1, a complete 52-page reference manual, a 15K ELIZA Program and the specially written P-LISP Tutorial - \$149.95. Gnosis, 40005 Chestnut Street, Philadelphia, PA 19104 (800) 523-0725 in PA (215) 387-1500.

Formula Transfer Link (FTL) is the easy way to speed up your Applesoft programs. You can run all your Applesoft programs with no changes, and without compiling them. Plus, FTL doesn't reduce your available memory. The key is ALF's AD8088 Processor Card, which adds a fast, 16-bit computer to your Apple. FTL sends Applesoft formulas to the card for fast processing, and runs programs that compilers won't, like programs with embedded Assembly language. But FTL is

compatible with most Applesoft compilers, so you can use TASC or Expediter II and FTL for even faster execution! The Dependable Processor Card easily meets Apple's 2 watt power recommendation. The Apple's 6502 processor runs at full speed while the Processor Card runs programs from its on-board memories. Several AD8088's can be used simultaneously. There's a Multiple Event timer (MET) for timing critical routines in your programs, with resolution to 50 micro seconds for scientific applications - \$345. Requires an Apple II with 16K RAM Card and disk drive. ALF Products, Inc., 1448 Estes, Denver, CO 80215 (303) 234-0871.

The Integer BASIC Compiler offers machine language speed and flexibility for the novice and experienced programmer alike. It runs up to ten times faster than other compiled programs and is more compact (memory saving) than any other compiler on the market. Standard features include full support of Hi-Res and Lo-Res graphics and full support of lower case characters, disk error recovery, CHR\$, GET, and KEY functions. The IBC has a relocatable run-time system, spots and flags program errors, and compiles code at about 50 lines per second. Its internal design is based on advanced computer science principles, but it is documented so that even a novice programmer can exploit its power. Programs written in Integer and compiled with the IBC can run on an Apple without Integer. With its extended string handling, hyperspeed arithmetic, and complete compatibility with DOS 3.3, the IBC is invaluable to Integer programmers. Requires an Apple II computer, 48K, DOS 3.3, and one disk drive to operate. \$149.95 from Synergistic Software, 830 North Riverside Drive, Suite 201, Renton, WA 98055 (206) 226 - 3216.

MicroSPEED is a high-level, general purpose language system for the Apple computer, using a unique combination of hardware and software to provide greatly increased processing performance which would normally require a minicomputer system. For a variety of mathintensive applications, the MicroSPEED II System (\$495 complete) runs eight to ten times faster than Applesoft BASIC, and MicroSPEED II Plus (\$645 complete) will improve processing speed by a factor of fifteen to eighteen, relative to BASIC. Some functions (e.g. square roots) run over 100 times faster than BASIC. The package consists of the Auxiliary Processor Card for high-speed mathematics, four diskettes containing the System Software, and a comprehensive, 160-page Users Manual (\$15 separately), containing extensive tutorial and reference sections, glossary and index. For further information contact Applied Analytics Incorporated, 8910 Brookridge Drive, Upper Marlboro, MD 20772 (301) 627-6650.

#### Personal

Apple Tree Genealogy System for your Apple II Plus computer is a professional-level family recordkeeping system. Handles 1000 names (variable length) and features a hierarchical data-structure; fast memory-resident scroll; unique label control matrix; 100 user-definable fields. Customize your own reports. Automatic proofreader report and self-teaching tutorial – \$69.95. Requires Apple II Plus with 48K and DOS 3.3 with 1 or 2 drives. J. Fiske Software Systems, Inc., One University Place, New York, NY 10003.

Coin Keeper allows you complete inventory control of an unlimited number of coins. Purchase, Sell, Edit, Delete, Print Inventory, and Inquire Functions. Also, current market data with profit or loss on all items and total inventory on hand. Categorize coins by 14 separate categories. Historical files are maintained for all coin sales. Complete documentation. DOS 3.3, 48K, 2 drives required – \$49. Texas residents add \$2.45 tax. The Quill Software Services, 3118 Sayles Blvd., Abilene, TX 79605 (915) 698-2666.

#### **Utilities**

DPatch 1.3 is a CP/M and MP/M based disk recovery and reliability system. It gives you the ability to recover files that contain input/output errors and to regain the use of disks that have error tracks. With CPatch, files that have been erased from the disk directory may be recovered. Additionally, you can extract data from files that are no longer readable under normal circumstances. Damaged or unreadable disks can be returned to normal using DPatch's Surface Analysis, which analyzes and locks out damaged areas. DPatch is distributed in most popular disk formats and has a suggested retail price of \$195. Complete specifications are available from Advanced Micro Techniques, Suite 209, 1291 East Hillsdale Blvd., Foster City, CA 94404 (415) 349-9336.

CRAE 2.0 is a fast co-resident Applesoft editor. Now, perform global changes/finds to anything in your program. Other commands include: Renumber, Append, Quote (Copy), List (Optimized), Modify



## ople adds a whole new cast of characters.

As you may already know, both the Apple® II and III can drive virtually every printer on the market.

Regretfully, not every printer on the market can offer you the same level of service and support you'd expect from Apple. So the same kindly, competent dealer who healed your Apple overnight may have no idea how to fix your Samurai Ichiban daisywheel.



Silentype.

Dot Matrix. Letter Quality

That's why we thought it would be nice, maybe even profitable, to offer a full line of printers that would look like Apples, last like Apples, with Apple warranties and Apple dealer service and Apple documentation.

We even gave them Apple names: The new Apple Dot Matrix Printer. The new Apple Letter Quality Printer. And the new Apple Thermal Printer. (Which is really the old, reliable Silentype™)

Taking it from the top, our 7 x 9 Apple Dot Matrix Printer is a superb machine for correspondence-quality printing. With exceptionally legible, fully-formed characters, it gives you a choice of eight different type sizes and five different fonts. It can also give you proportional spacing. Plus boldface printing, underlining, varied pitches, varied line spacing and more.

With 144x160 dots per square inch, our Dot Matrix can put all kinds of high resolution graphics on paper-from bar charts and line graphs to digitized portraits.

The Apple Letter Quality Printer, on the other hand, is the preferred machine for just that. In fact, for any word processing or data processing applications where graphics aren't a primary concern.

For one thing, it lets you get the words out faster. At a blazing 40 cps (instead of the usual 30-35), it's the speediest letter quality printer in its price range.

It also offers a full 130character print wheel. (The current standard is a notso-full 96 characters.)

Plus varied pitches and spacing, form or line feed. operation pause-seemingly unimportant talents until vou discover your machine doesn't have them.

Both the Apple Letter Quality and Dot Matrix printers come with selfteaching diskettes. So your Apple computer can tell you how to use your Apple printer.

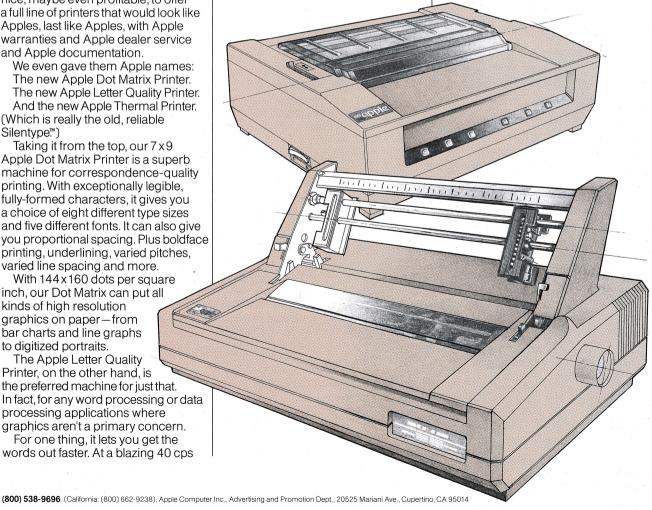
Naturally, all our printers — including the sturdy, inexpensive Silentype™-are deliberately designed to take full

advantage of all the advantages built into every Apple computer. The interfaces are clean, the electronics compatible. So you don't have to go peeking and poking to adapt print commands or parameters, or spend your summer vacation

kluging an interface. Which is a lot more than we can say for the Samurai Ichiban.

All of which should stimulate you, we hope, to see the newest Apples

They look good, even on paper.



A0C4C9D3CBA0D5D4C9CCC9D4D9A0A4B5B0A0

C4

C9

DØ CC

C1

D9

ΑØ

Α6

AØ

DØ

C1

D4

C3

**C8** 

AØ

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CD

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#### **Disk Utility** for Apple DOS 3.3

D2

C5

D4

CF D2 C5 A0 C4 C5 CC C5 D4 C6 C6 C9 CC

D3

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AØ C5

D8 C1 CD C9 CE C5 AØ C1 CE C4

ΑF

CF

D2

ΑØ

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C1

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C3

**C8** 

ΑØ

C1

CE

D9

ΑØ

C4 C9 D3 CB AØ D3 C5 C3

D4 CF

D2

AØ

ΑØ

ΑØ

ΑØ

C4

C9

D3

CB

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#### **LOST PROGRAM RECOVERY**

If you haven't written over that program accidentally deleted, this software can recover it for you.

Also, it can reorganize your disk and inform you of the remaining space available.

And, it allows you to patch any sector: display in **Hex and ASCII on** standard Apple screen.

Menu driven and easy for the novice while still efficient for the professional. Compatible with M & R Superterm.

For more information or to place your order call: [208] 263-1213

#### **Cost: \$50**

We pay first class postage and insurance. You may use VISA or Master Card.

TO ORDER: Send us your check, money order or credit card number and expiration date. Certified checks avoid clearance

**ANSWER Corporation** CF 502A North Second Ave. CF CCSandpoint, Idaho 83864

AØAØC2D9AØCAC5D2D2D9AØD4C9C6C6D4AØAØ

(Single Line), Auto Line Numbering, Formatted Memory Dump, HEX/DEC conversion, Free space, and ability to enter monitor commands, CRAE 2.0 is compatible with Neil Konzen's Program Line Editor, Requires 48K RAM Applesoft ROM and Disk - \$39.95. Also, MCAT 2.0 is a fast binary utility which creates a sorted master catalog which is saved on disk as a binary file (fast). The master catalog can be easily updated a whole diskette at a time (add, delete, replace). List/Print have global search capability and one or two columns, provisions for duplicate volume numbers. Approximately 1200 file names, 48K or 32K, 13 or 16 sectors DOS supported - \$24.95. Both on one disk - \$59.95 with manuals. At your local software dealer.

Back It Up II has been improved and enhanced to provide the end user with the most powerful disk duplication system for the Apple II computer. Multiple parameter changes allow easy adaptation to the latest protection techniques. Back It Up II Plus is intended for the sole use of the computerist who wishes to back up his/ her disk library. \$7.50 disk update/replacement policy. Sensible Software, Inc., 6619 Perham Drive, West Bloomfield, MI 48033. (313) 399-8877.

Transform your slow DOS 3.3 into HyperDOS. HyperDOS Creater is a machine language program that modifies the 'In-memory' image of DOS 3.3. A Hi-Res picture that normally takes 13 seconds takes only 3.1 seconds! Loads binary and BASIC programs 500% faster than DOS 3.3. Use HyperDOS as your HELLO program. Initialize your new disks with Hyper-DOS. Replace the old, slow DOS on your disks. For only \$19.95 you receive: Hyper-DOS Creater on disk PLUS a fully-commented source code listing and a free copy of Hardcore Computing. No credit cards, please, U.S. funds only. SoftKey Publishing, P. O. Box 44549, Tacoma, WA 98444 (206) 531-1684.

Copy II Plus 4.0 is a complete disk utility system with all you need to back up disks, manipulate files and test your disk system. It includes an all new bit copy program with extensive documentation and parameters. Handles synchronized tracks, half tracks, nibble counting, nibble timing and other protection schemes. Includes specific disk instructions, as well as complete documentation on parameter changes. Also includes a File management system for DOS 3.2 & 3.3. Catalog with binary files start and length display; copy disk, DOS, or files; Delete DOS, files, or Undelete Files; Lock or Rename files; Initialize a disk; Fix file sizes; Change booting program; Alphabetize catalog or disk; Verify file or disk sectors; Compare files for differences; Display disk usage map. An additional program, Disk Check, will verify correct operation & drive speed.

Suggested retail price of \$39.95. At your dealer or contact Central Point Software. Inc., P. O. Box 19730, Portland, OR 97219 (503) 244-5782.

DISASM (Version 2.2) is the intelligent disassembler for the Apple II. DISASM converts 6502 machine code into meaningful, symbolic source. The resultant text file can be used with any of the most popular assemblers. DISASM is an invaluable aid for understanding and modifying machine language programs. Selectable output formats are directly compatible with DOS Toolkit, LISA and S-C (4.0) Assemblers. Written in 100% machine language for fast operation. Auto-prompting for easy use. Labels are automatically assigned as Page Zero, External or Internal. Labels and addresses are sorted for user convenience. ORiGin and EQUate pseudo-ops provided. Source seamentation after JMP and RTS allows for easier reading and understanding. No restriction on disassembled block length. Correctly disassembles displaced object code. Optional Label Name Table replaces arbitrary label assignments (over 100 of the most commonly used subroutine labels for the Monitor ROM are included). Extend the Name Table with your customized changes. Features a full cross-reference to screen or printer and a single cross-reference search for a user specified address. \$30 from RAK-WARE, 41 Ralph Road, West Orange, NJ 07052. Upgrade Kit for previous purhasers of DISASM: \$12.50.

The Documentor permits your Apple II or TRS-80 MOD2 or III to produce its own flowchart. Program logic is graphically displayed to your screen or printer. Uses include flowcharting Applesoft, BASIC Level II or Disk BASIC. A branch map is also produced. Apple version requires 48K and one disk drive. \$49.95 from P-80 Nut Software, P. O. Box 490, Lilburn, GA 30247 (404) 469-0056.

**DIRFIX** is an Apple Pascal program that will allow you to easily recover from damaged disk directories and accidentally removed disk files. Dirfix studies the contents of an Apple Pascal disk directory looking for and repairing errors in that directory. Dirfix will then analyze the data on the rest of the disk, looking for Text files and Code files that are 'missing' from the disk directory; these files too are returned to the disk directory. The Dirfix disk also contains the programs Dirlist and Copydisk. Dirlist prints the contents of a disk directory; Copydisk copies an entire disk for back-up purposes, and compares that copy to the original! Both are handy programs to complement Dirfix. Dirfix is available on a standard format 5-1/4 inch Apple Pascal floppy disk for use in an Apple Disk II disk drive and is accompanied by instructions that are very easy to follow. Requires an Apple II or



Now you can spend more time on sound analysis, and avoid data collection drudgery. The Quicktrieve System can turn your Apple II+. Apple III, and later your TRS-80 I or III, and IBM Personal computer into a laboratory that will come alive with processing capability. Our customers tell us—

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"It makes my computer's telephone device work twice as fast as the manufacturer's rating and cuts my phone time 70%."

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Send \$45 for one month of introductory service and one free month of back data. We will forward all necessary forms including a fully operational Quicktrieve on an Apple II + or III floppy disc. We'll include complete documentation, programming examples, and illustrative technical analysis software. **You'll love Quicktrieve too.** 

#### Commodity Systems, Inc.

200 W. Palmetto Park Road • Boca Raton, Florida 33432 (800) 327-0175 or (305) 392-8663, Telex 522107

In Aust-D Kynoch 2-233-6822 • In W. Ger-W Henrich 211-325-252 • In Switz-F Molina 22-555-855

Apple II Plus with the Apple Pascal Language System and at least one disk drive. The use of a hard copy printer is optional. And of course, Dirfix works for files created by Apple Fortran and Apple Pilot. Dirfix costs only \$35 and is available from Seven Mile Systems, Inc., 420 East Eighth Street, The Dalles, OR 97058 (503) 296-1436.

The Filer, an Apple disk utility system for 35, 40, and 70 track drives contains a disk drive speed check, disk drive test, fast copy program (35 seconds) and a sophisticated file manager. Options include: Catalog with space on disk, Copy Files, Copy Disk, Copy DOS, Delete, Lock and Unlock Files, and Change Booting Program (name and file type). Suggested retail price is \$ 19.95. Available at computer and software stores or direct from: Central Point Software, Inc., P. O. Box 19730 – #203, Portland, OR 97219 (503) 244-5782.

#### **Word Processing**

Format-II is a word processor for the Apple II Plus in professional office environments. Written in machine language, it is core-resident. Once booted, here is no further need to access the program disk. Both disk drives become available for text. Format-II does away with confusing CTRL functions. All editing and formatting commands are accessed with single key strokes. To 'center' a block of text touch 'C'; to 'delete' touch 'D'; 'justify' touch 'J', and so on. Format-II comes complete with a built-in Mailing List. (Isers are provided with records up to 16 fields (lines) long. 450 such records fit on each

Mailing List disk. Users can perform alphanumeric sorts and string 8 of 16 fields within complicated logic. Supports all Apple II compatible printers. Proportional space justification supported on Diablo, Qume, NCE and C. Itoh printers. Requires an Apple II Plus with an 80 column card and 48 or 64K RAM. Suggested retail is \$375. Kensington Microware Ltd., 300 East 54 Street, New York, NY 10022 (212) 490-7691.



The **Sensible Speller** is the first complete spelling verification program for the Apple Computer. No other spelling program includes as many options, or has a dictionary (on diskette) as large as this one, and it includes a well known, hard-cover dictionary, too. Sensible Speller now features the complete Concise Edition of the Random House Dictionary. If you question the definition, pronunciation, or spelling of any word, you can simply look it up in the supplied hardcover

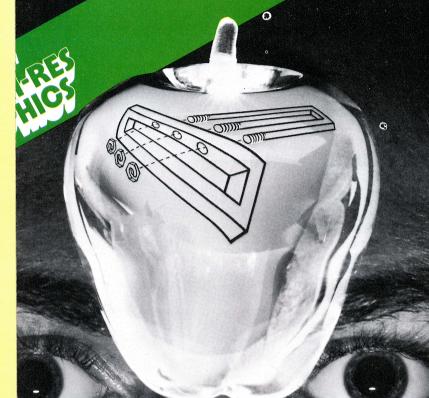
dictionary. Four versions of The Sensible Speller are available. There is no need to MUFFIN or transfer your files from one operating system to another. The DOS 3.3 version works with Applewriter, Apple Pie, Magic Window and any other word processor that generates standard DOS 3.3 files. The Super Text version works with all Super Text versions. The CP/M version works with WordStar, ED, Magic Wand, Type Master, and any other word processor that does not compact text. The Pascal version works with the Pascal Editor, and Prose. Includes two copies of the Sensible Speller Program - \$125. Sensible Software, 6619 Perham Drive, West Bloomfield, MI 48033 (313) 399-8877.

Word Handler is a new, fully professional word processing program for the Apple II. It makes hardware fixes unecessary and will run on any 48K Apple II or II Plus with at least one disk drive (a Corvus version is forthcoming). Word Handler uses the Apple's high-resolution graphics for screen display, providing upper and lower case characters without additional hardware. (Note: it is compatible with the shift key modification, and with the Videx Keyboard Enhancer for shift key use). Printing enhancements include underlining, boldface, and superscripts - on screen at the time of entry! The display also justifies using microspacing so that you can see just what it will look like if it were printed by a printer capable of microspacing! This is done instantaneously during text entry. The display features a bar indicating page breaks. This is a valuable feature during editing, since the user can instantly tell where page breaks take place and can organize text for placement of titles, footnotes, etc. with no guesswork involved. Line lengths up to 198 characters are optional. Printing speed on a letter

#### the SECURITY EQUATION Pat. Pend. Do you stack your expensive disc finish compliments your Apple II comdrives or monitor precariously on top of puter. No need for cooling fans as the each other? APPLE STACKER™, the rack large open grid of the rack allows air to designed to stack and securely hold flow freely. Has space to store diskette apple stacker... your Apple II computer system compactly boxes when not in use. Designed to showcase and not detract from your and neatly, makes any surface a work system's appearance. Almost invisible. Heavy gauge steel with chip resistant Mail check, M.O., or Visa/Mastercard number and expiration date. Calif. residents add B. R. Green 6.5% tax.

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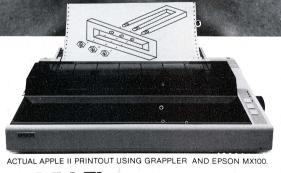
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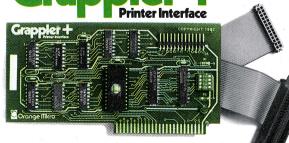
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# With The Grappler + Printer Interface



The Grappler + Features:

• Dual Hi-Res Graphics • Printer Selector Dip Switch • Apple III Compatible\* • Graphics Screen Dump • Inverse Graphics • Emphasized Graphics • Double Size Picture • 90° Rotation • Center Graphics • Chart Recorder Mode • Block Graphics • Bell Control • Skip-over-perf • Left and Right Margins • Variable Line Length • Text Screen Dumps.

The Grappler + also works with Pascal and CPM.

#### The Grappler + interfaces with the following printers:

- Anadex Centronics Datasouth
- Epson\*\* NEC C-Itoh Okidata\*\* The original Grappler is available for IDS 460, 560, Prism, Microprism.



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CPM is a registered trademark of Digital Research, Inc. Apple is a registered trademark of Apple Computer, Inc.

<sup>\*</sup>Requires additional software driver.

<sup>\*\*</sup>Requires graphics upgrade.
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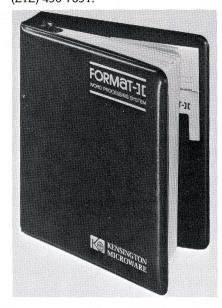
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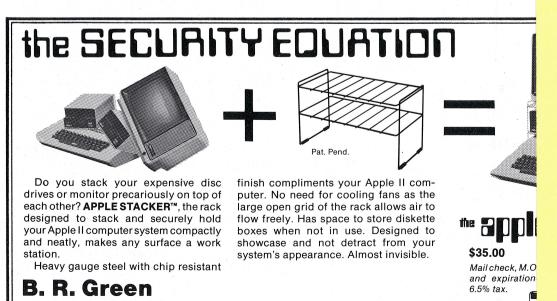
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operating 3.3 version Pie, Magic processor 3.3 files. with all Si version w Wand, Ty processor The Pasca Editor, and the Sensi Sensible \$ West Blog 8877.

Word H sional wor Apple II. It sary and w Plus with a version is uses the A for screen lower case hardware. shift kev n Keyboard Printing er ing, boldfa at the tim justifies us can see ju printed by ing! This i text entry indicating feature du instantly te and can titles, foot involved. L are optior



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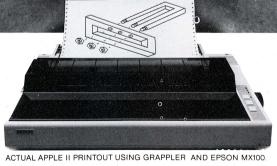
# CAPTURE IT The Grappler + Features:

#### Completely Redesigned. Now, the Grappler + .

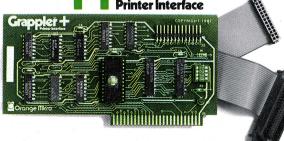
The original Grappler was the first graphics interface to give you hi-res screen dumps from your keyboard. The new Grappler + with *Dual Hi-Res Graphics* adds flexibility with a side-by-side printout of page 1 and page 2 graphics.

Interfacing the Grappler + to a wide range of printers is easy as changing a dip switch. 4K of exclusive firmware makes the Grappler + the most intelligent, full-featured Apple® Printer Interface made. And, the Grappler + is Apple III compatible.\*

The imitations are many, so insist on the #1 Apple Graphics Interface on the market. Insist on the Grappler + . Available now at most Apple dealers.







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• Emphasized Graphics • Double Size
Picture • 90° Rotation • Center
Graphics • Chart Recorder

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Graphics • Chart Recorder
Mode • Block Graphics • Bell
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<sup>\*</sup>Requires additional software driver.
\*\*Requires graphics upgrade.

<sup>©</sup>Orange Micro, Inc. 1982

quality printer such as the Qume is fast, even with microspace justification selected. Individual pages of a document may be printed randomly or separately at the users command. This is invaluable in correcting typographical errors in the middle of your document without printing the entire document again. List price \$249 at your local dealer or contact Silicon Valley Systems, 1625 El Camino Real, Suite 4, Belmont, CA 94002 (415) 593-4344.

#### **Books/Catalogs**

Apple Machine Language explains programming in the Apple's 6502 machine language in a clear and understandable manner. It leads the reader through BASIC, the monitor program and the Apple Mini-assembler. The book covers binary and BCD mathematical methods, multiple byte arithmetic and two's complement representation. Practical uses for the various techniques are given in graphics, arithmetic and game examples. Exercises are given at the end of each chapter. These are helpful in determining if the preceding information was learned correctly. Answers to the exercises are

provided as well thereby lending itself to classroom use. \$12.95, 224 pages, from Reston Publishing Company, Inc., Reston, VA 22090.

The Directory of Online Databases covers over 1200 databases from more than 190 online service organizations. Includes six types of databases: bibliographic, containing citations and abstracts to articles, books, reports, etc.; referral, containing leads to individuals, organizations, and technology; numeric/statistical; chemical or physical properties of substances; combination numeric/textual; full text. Features addresses of producers and online services and indexes by subiect, producer, online service and telecommunications networks, and by database name. Contains 222 pages of detailed information. Subscription rates: \$75 in U.S., \$85 in Canada and Mexico, \$92 all other countries. Produced quarterly. Cuadra Associates, Inc., 2001 Wilshire Blvd., Suite 305, Santa Monica, CA 90403 (213) 829-9972.

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Apple Pascal: A Hands-On Approach, by Arthur Leuhrmann and Herbert Peckham is a spiral-bound guide that puts the most powerful language a computer can have at your fingertips – gives you all the working skills you need to create, run, and debug programs in Pascal on the Apple II or Apple II Plus. Leads you painlessly from fundamentals to data structures, recursion, and other advanced topics. \$16.95, 384 pages (049171-2). McGraw-Hill Book Company, P. O. Box 400, Hightstown, NJ 08520.

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Pascal Market News is aimed at current and prospective Pascal language users. This bimonthly newsletter is packed with Pascal hardware and software information, commercial notices, and interviews with personalities in the news. An a recent issue, Pascal Market News explored the use of Pascal in real-time chemical analysis of blood samples at Yale-New Haven Hospital. Subscribing to Pascal Market News entitles you to discounts on many Pascal-related books and software publications. A year's subscription costs \$20 in North America. Foreign prepaid air-mail subscriptions are \$29, and invoiced subscriptions are \$4 higher. Order from Pascal Market News, P. O. Box 5314. Mount Carmel, CT 06518.

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Instructor's 1982-83 Computer Directory for Schools, published by Instructor magazine, brings educators and marketers together in this first annual buyer's guide to the selection of microcomputers and peripherals, courseware, computerassisted and computer-managed instruction systems, books and resources, magazines and journals, and free materials. More than 1,000 manufacturers, dealers, and editors were contacted to supply the most current information in the rapidly changing field of instructional technology. It is intended to be the most available reference for educators who need information on the state-of-the-art. \$19.95 from Instructor magazine, 757 Third Avenue, New York, NY 10017 (212) 888-3400.

Quality Management Monthly (QMM) is a specialized newsletter dedicated to the assurance of high quality throughout computer software system development. QMM has regular contributions from internationally known experts in Software Engineering and Quality Management Technology. Subjects cover technical advances, new software methodologies, products, systems, literature, reviews of recent books, etc. There are also regular sections devoted to a calendar of events, conference reviews, current literature and reviews, who's who in Quality Management, new products, etc. One year subscriptions to Quality Management Monthly are \$225 for USA or Canada addresses (\$275 for foreign addresses). Multiple addressee and Corporate multi-copy discounts are available. A sample issue is available when requested on Company letterhead. Software Research Associates, P. O. Box 2432, San Francisco, CA 94126 (415) 957-1441.

The BASIC Conversions Handbook for Apple, TRS-80 and PET Users is a book that simplifies the method used to convert a BASIC program for the TRS-80, Apple II or PET into the form of BASIC used by any other one of those machines. The book is a complete guide to converting Apple II and PET programs into the TRS-80, TRS-80 and PET programs into the Apple II and TRS-80 and Apple II programs into PET. Equivalent commands are listed for TRS-80 BASIC (Model 1, Level II), Applesoft BASIC and PET BASIC as well as variations for the TRS-80 Model III and Apple Integer BASIC. Also described are variations in graphics capabilities, PEEK, POKE and CADL statements, cursor control characters, memory locations, subroutines and sample programs. Paper-

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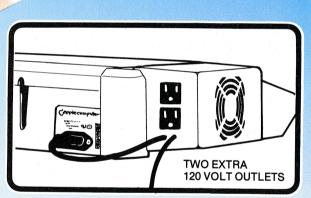
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The Apple Cart Special Interest group of American Mensa (the American branch of the international high-IQ society) is proud to announce that it is entering its third year. In addition to its bimonthly newsletter with international circulation. The Apple Cart operates a Software Exchange for its members. Annual dues are \$6 for members of Mensa and \$8 for those who are not members of Mensa. For further information please send a selfaddressed, stamped envelope to C. Brandon Gresham, Jr., National Coordinator, The Apple Cart, Bin 'R' - Project 5810-1, Pasadena CA 91109

W.P. News: a Writer's POV on Word Processing is a bimonthly private subscription newsletter for Writers in the Computer Age. The growing network of writers who have traded their Selectrics for Apples, Osbornes and Wangs (among others) include screenwriters, novelists, journalists, non-fiction authors, newsletter and periodical editors, secretarial and word processing services, typographers, university professors and departments, libraries, psychologists, doctors, lawyers and business people. Regular departments include 'A Writer's Point of View'; 'Practical Matters'; 'Literary Affairs'; reviews of hardware/software and systems; and 'Tidbits', an informative column of one-paragraph items of interest to all. Sample copies are \$2 each. Subscription is \$20/year; subscribers receive discounts on supplies, books, programs and other resources. W.P. News: a Writer's POV on Word Processing, 1765 N. Highland #306, Hollywood, CA 90028 (213) 854-4161.

The 1983 Classroom Computer News Directory of Educational Computing Resources was prepared by educators for educators. Contains descriptions of periodicals, professional associations, ongoing projects, funding, and many sources of ideas, information and materials. The Directory, committed to humanizing and demystifying classroom computers, is over 200 pages long, and is the only publication of its kind. The glossy, fullcolor Directory is an indispensable reference guide for libraries, teachers, and everyone interested in educational computing. The Directory will be published September 1, 1983 and will be in bookstores and computer stores in the fall. To learn more about the Directory, special rates for paperback and hardcover editions, or the monthly magazine Classroom Computer News, write or call Classroom Computer News, 341 Mt. Auburn Street, Watertown, MA 02172 (617) 923-8595.

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CP/M '83 will be an international conference and exposition for developers, distributors, retailers, and end users of CP/M software. The show will be held Thursday through Sunday, January 20-23, 1983 at San Francisco's Moscone Center. The event is sponsored by Digital Research Inc. which is headed by Gary Kildall, the creator of CP/M. Assembled at CP/M'83 will be the most extensive group of CP/M related workshops ever developed. Noted leaders from the software industry will conduct these informative discussions, which will explore CP/M applications, technical information, development aids, uses in different professions, and support services. This conference program will strive to show how to get the most from a CP/M computer. For more information call or write Northeast Expositions, 824 Boylston Street, Suite 202, Chestnut Hill, MA 02167 (617) 739-2000.

The Minnesota Educational Computer Consortium (MECC), a national leader in the implementation of instructional computing on a local, regional, and statewide basis is sponsoring a conference to share a decade of experience serving educators. The conference, scheduled for December 1 and 2, 1982, in Minneapolis, will be dedicated to practical sessions directed at educators involved in promoting the use of computers in schools. Sessions will cover in-service training techniques, software and hardware evaluations, classroom teaching strategies and activities, K-12 curricula planning, and promotional events including computing contests for teachers and students. Banquet sessions will feature addresses by Steve Jobs, Chairman of the Board of Apple Computer, Inc., and Roger Badeschar, President of Atari, Inc. For more information and registration forms, write MECC '82, 2520 Broadway Drive, St. Paul, Minnesota 55113 (612) 376-1131.



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